

CJCSM 3320.02
8 November 2002

JOINT SPECTRUM INTERFERENCE RESOLUTION (JSIR) PROCEDURES



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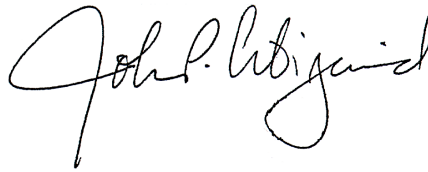
References: See Enclosure H.

1. Purpose. This manual standardizes techniques and procedures for spectrum interference resolution throughout the DOD. This manual provides detailed guidance to the DOD regarding standard EMI detection, identification, reporting and resolution procedures for space and terrestrial systems.
2. Cancellation. None
3. Applicability. This manual is applicable to the Military Departments (to include the US Coast Guard), combatant commands, unified commands, subunified commands, Service component commands, Joint Task Forces, combined commands, Defense agencies and DOD elements of the Intelligence community; hereafter referred to as the DOD components. This document may be reprinted without further authorization.
4. Procedures. Controlling the electromagnetic battlespace is key to successful military operations. Inherent in this control is the rapid resolution of EA and EMI. DOD components will develop specific procedures and training necessary to implement CJCSI 3320.02A, using the procedures contained within this manual and the policy guidance given in the references.
5. Additional Copies of Manuals.
6. Summary. This publication provides processes and procedures in EMI resolution throughout the DOD and within the Joint arena.

7. Releasability. This manual is approved for public release; distribution is unlimited. DOD components (to include combatant commands), other federal agencies and the public may obtain copies of this manual through the Internet from the CJCS Directives Home Page -- [http//www.dtic.mil/doctrine/jel/cjcsd.htm](http://www.dtic.mil/doctrine/jel/cjcsd.htm). Copies are also available through the Government Printing Office on the Joint Electronic Library CD-ROM.

8. Effective Date. This manual is effective upon receipt.

For the Chairman of the Joint Chiefs of Staff:

A handwritten signature in black ink, reading "John P. Abizaid". The signature is fluid and cursive, with the first name "John" being the most prominent.

JOHN P. ABIZAID
Lieutenant General, USA
Director, Joint Staff

Enclosures:

- A -- Joint Spectrum Interference Resolution Procedures
- B -- DMS and AUTODIN Message Addressee
- C -- Security Classification Guide and Message Precedence Guidelines
- D -- EMI Characterization and Resolution at the Local Level
- E -- EMI Reporting Format
- F -- Natural Phenomena Effects
- G -- Essential Points of Contact Information
- H -- References
- Glossary

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ENCLOSURE A

JOINT SPECTRUM INTERFERENCE RESOLUTION (JSIR) PROCEDURES

1. General. EMI regularly hampers the command and control of military operators by degrading essential systems that use the electromagnetic spectrum. EMI impedes operations and hinders mission accomplishment. Effective EMI management plays a crucial role in assuring critical information is exchanged timely and accurately, in times of war, during operations other than war, and peacetime. Effective EMI management is crucial to obtaining and maintaining information superiority, an essential foundation of information operations. Timely and accurate identification, verification, characterization, reporting, geolocation of the source, analysis, and resolution of EMI during military operations is essential to maintaining command and control of US forces and responding to adversary EA actions. Since EMI can be caused by enemy, neutral, friendly, or natural sources, generally, it must be resolved on a case-by-case basis. The intent of these procedures is to resolve EMI incidents at the lowest possible level within the command structure. However, when the cause and recipient of the interference are not within the same component force or supporting element, resolution may require assistance from the combatant command, Joint Task Force, Service Spectrum Management Headquarters, or Joint Spectrum Center. Users must report all EMI regardless of the severity. It is essential that efficient, practical procedures be established to effect the reporting and resolution of EMI.
2. Background. The JSIR Program was established in October 1992 by the Department of Defense to address persistent and recurring electromagnetic interference problems affecting DOD systems. The JSIR program replaced the DOD Meaconing, Intrusion, Jamming, and Interference program that was disestablished on 30 June 1992.
3. Definitions. See Glossary.
4. The JSIR Program. The JSIR program addresses EMI events and electronic warfare affecting the Department of Defense. The program is coordinated and managed for the Joint Staff Command, Control, Communications, and Computer (C4) Systems Directorate (J-6) by the JSC, Annapolis, Maryland. The program itself is centrally managed; however, the execution process is highly decentralized. Each of the DOD components shares responsibility for successful execution of the JSIR program. (CJCSI 3320.02A)
 - a. The objective of the JSIR program is to report and assist with the resolution of EA and recurring EMI from cradle to grave. The resolution process for EMI events are broken into three steps: 1) identification, verification, characterization and reporting, 2) geolocation, analysis,

developing courses of action and recommendations (corrective actions), 3) implementation, and notification to user(s) and final closure reporting. Resolution includes but is not limited to implementation of EMI corrective actions needed to regain use of the affected spectrum. However, some EMI events cease before corrective action is taken, and in other cases, the EMI corrections may not be feasible, affordable, or result in regaining the use of the spectrum.

b. The JSIR program resolves EMI at the lowest possible level using organic and/or other assets available to the command. If an EMI event cannot be resolved locally, it must be elevated up the chain of command with each higher level attempting resolution. If the event cannot be resolved at the combatant command, JTF, Service, Defense agency headquarters or Joint Staff level, then each may request JSC JSIR support.

5. Roles

a. Joint Staff/J-6. The Joint Staff J-6 Combatant Command Operations Division (J-6Z) is responsible for the coordination of interference resolution efforts that involve multiple unified commands and/or DOS coordination with other countries. The Joint Staff may require inter-area of responsibility combatant command cooperation or may coordinate with the DOS for International Affairs when combatant command liaison efforts fail or are not possible. The Joint Staff can request JSC JSIR technical support. The Joint Staff J-6Z will provide status of ongoing efforts to the Military Communications-Electronics Board (J-6B) for use in frequency management policy development.

b. Unified Commands, Subunified Commands and Combined Commands. The unified commands, subunified commands, and combined commands are responsible for developing the local procedures, training, and reporting requirements in their respective AOR for resolving interference matters. In cases of EMI to terrestrial systems used outside the CONUS, the command using the affected system is responsible for resolving the interference. When interference originates from one command's AOR that affects another command's AOR, the command responsible for the AOR where the interference source is located will support the other command. The supporting command will request host-nation assistance to identify the interfering source and resolve the EMI problem. Unified commands, subunified commands, and combined commands can request JSC JSIR technical support.

c. Services. The Services are responsible for developing the training necessary for interference awareness and reporting procedures. In cases of terrestrial interference, the Service owning or operating the affected system is responsible for investigating and resolving the interference. If the interference

incident cannot be resolved by the affected DOD component or the Service spectrum management agency responsible for spectrum interference resolution, it is referred to the JSC for resolution. A Service headquarters can request JSC JSIR technical support. Implementation and costs associated with recommended EMI fixes are the responsibility of the Service owning the equipment. The Service frequency management offices have been identified as the cognizant office for EMI issues. These include the Air Force Frequency Management Agency, Army Communication-Electronics Services Office, and Naval Electromagnetic Spectrum Center.

d. Joint Task Force. The JTF is responsible for developing local procedures and reporting of EMI. The JTF may request assistance from the supported unified command to resolve the EMI.

e. Joint Frequency Management Office, Joint Spectrum Management Element, and Area Frequency Coordinators. JFMOs and AFCs are the unified, subunified command, and Service resources responsible for management of the electromagnetic spectrum within their respective AORs. JSME perform the same function for JTFs. The JFMO/JSME usually reports to the command J-6. The JFMO/JSME is also assigned the responsibility for requesting and coordinating interference resolution support from the JSC.

f. Joint Spectrum Center. The JSC's mission is to ensure the Department of Defense's effective use of the electromagnetic spectrum in support of national security and military objectives. The JSC serves as the DOD center of excellence for electromagnetic spectrum management matters in support of the Joint Staff J-6, the Office of the Assistant Secretary of Defense for Command, Control, Communications and Intelligence, unified commands, Military Departments, and Defense agencies. The JSC is tasked to provide spectrum management, interference resolution, and direct support teams to the unified and JTF commanders. The JSC is responsible for tracking all EMI events from initial report of a problem through closure, and for providing ready access to this tracking information. The JSC also provides JSIR field teams to deploy to a site and trouble-shoot EMI problems. The JSC serves as the center for EMI reporting and resolution, and in so doing has the authority to coordinate and task other involved organizations as deemed necessary to resolve EMI. The JSC will coordinate interference resolution with civilian authorities when interference is CONUS-based and involves civilian spectrum use. Upon receipt of a JSIR service request, the JSC JSIR team will perform an in-house analysis using JSC models and databases to determine potential sources and will coordinate directly with the appropriate field activity spectrum managers to resolve interference problems. Throughout this process, the JSC will provide feedback to the appropriate agencies as necessary. When requested by a combatant command, JTF, Defense agency, Service headquarters, or the Joint Staff, the JSC JSIR team will deploy, with the approval of the geographic

combatant command, to the victim location to identify and attempt to resolve ongoing interference problems. If determined, the JSIR team will provide the organization requesting JSIR support a message identifying the source of interference and suggested resolution actions. The implementation and funding of the recommended resolution actions is the responsibility of the Service or command/organization owning the equipment. The results of the analysis and onsite visit will be incorporated into the JSIR database. This database supports both trend analysis and future interference analyses.

g. National Security Agency. The DIRNSA is the principal signals intelligence and information systems security advisor to the Secretary of Defense, the Director of Central Intelligence, and the Chairman of the Joint Chiefs of Staff. As such, DIRNSA is responsible for providing SIGINT support for spectrum-use efforts of the combatant commanders and other commanders as designated by the Chairman of the Joint Chiefs of Staff. In addition, DIRNSA can task subordinate SIGINT resources to participate in the interference resolution process.

h. Joint COMSEC Monitoring Activity. JCMA is a unified command resource that provides communications security (COMSEC) monitoring within the unified command's AOR. The JCMA can assist in UHF MILSATCOM EMI source characterization and analysis of interfering signals. The JCMA is directly tasked by the unified command.

i. Federal Communications Commission. The FCC provides support to the Department of Defense with direction finding and assists with EMI issues concerning US civilian entities.

j. US Strategic Command. USSTRATCOM will assist and support EMI resolution efforts for DOD space systems. Also, USSTRATCOM will determine if an EMI event is hostile in nature and report suspected acts of hostility to warfighting combatant commands and the National Command Authority IAW the Emergency Action Procedures of the Chairman of the Joint Chiefs of Staff, Volume VI. Additionally, each USSTRATCOM component is responsible for reporting and resolving EMI events within their established scope and responsibilities. USSTRATCOM resources include the GSSC and RSSC which are both dedicated to supporting MILSATCOM assets, the Global Positioning System Support Center which is dedicated to supporting global GPS operations, and the Joint Information Operations Center (JIOC) in its role to support Information Operations. USSTRATCOM's Space Operations Center serves as the command's focal point for receiving and processing reports of affected and degraded space systems to the appropriate USSTRATCOM organization for resolution.

k. National Telecommunications and Information Administration. NTIA functions as a clearinghouse for issues relating to the use of spectrum by the federal government. NTIA provides support and measurement capabilities to resolve EMI problems concerning interference between federal agencies and between federal agencies and the private sector.

6. JSIR Process. The process is designed to resolve EMI events at the lowest possible level with organic and other assets available at each organizational level. If an event cannot be resolved locally, it is referred up the chain of command with each higher level attempting resolution. If an event cannot be resolved at the combatant command, JTF, Defense agency, or Service headquarters levels, then JSC JSIR support should be requested. The format in Enclosure E should be used when reporting an EMI incident. The JSC will track the status of interference resolution efforts and results. When interference problems overlap combatant command/JTF AORs or occur between Services, the Joint Staff/J-6 (after consultation with the appropriate combatant command/JTFs, Service headquarters, Joint Staff, and technical consultants) will determine the proper course of action and assign a lead agency to coordinate EMI resolution activities. For cases involving interference with or caused by foreign systems that cannot be resolved by the combatant command/JTFs, the Joint Staff/J-6 will coordinate a response with the DOS requesting assistance in resolving the interference from the originating source. All suspected hostile incidents will be reported immediately to the organizations listed in Enclosure B, paragraph 5, using the format in Enclosure E.

a. Space. Space systems include the space, ground, and control segments directly supporting space operations. Interference and jamming are considered synonymous until a determination can be made as to the source of the problem. The distinguishing difference between interference and jamming is the intent of the originating source. Space system interference reports, of the affected space system(s), are forwarded through the operational unit chain of command. Interference or possible jamming affecting any US space system will be reported to the USSTRATCOM/SPOC (Enclosure G) as defined in Enclosure E. The USSTRATCOM/SPOC will determine the appropriate organization(s) within USSTRATCOM to resolve the EMI. Interference or possible jamming affecting SATCOM systems that cannot be immediately resolved at the component or combatant command/JTF level will be reported to the appropriate RSSC and GSSC (Enclosure B) in addition to the SPOC. Interference or possible jamming affecting GPS will be routed through the GPS Support Center as defined in Enclosure B. The GPS Support Center will coordinate all suspected GPS interference/jamming with the Federal Aviation Administration and the US Coast Guard Navigation Center. USSTRATCOM/SPOC, GSSC, or GPS Support Center will forward the event report to JSC for additional analysis and support as required. Joint Staff, J-3 and J-6 will be info copied on all message traffic regarding GPS interference/jamming. This process is illustrated in Figure A-1.

(1) MILSATCOM. For the purposes of this manual, MILSATCOM is defined as DOD owned/contracted and operated satellite assets for the use of both voice and digital communications supporting military operations.

(a) Identification/Verification. The unit experiencing the interference will use the procedures provided in Enclosures D and F to rule out local causes such as defective equipment, invalid frequency assignments, or other variables such as space weather.

(b) Characterization and Reporting Procedures. If the interference/jamming is present, the unit will determine the characteristics of the interference/jamming to allow further analysis by higher headquarters. A message will be generated including: the details of the problem, what steps have been taken to resolve the problem, any characterization of the interference/jamming signal, and a statement indicating whether on-site resolution support is needed. Message addressee for the report and the format of the messages is contained in Enclosures B and E, respectively. Each succeeding higher headquarters will attempt to make a determination as to the source of the interference/jamming and add any details to the original interference report as required.

(c) Geolocation. When interference is determined to be originating on a satellite uplink channel, the interference will be reported to the

appropriate RSSC in accordance with Enclosure B for further analysis and submission through the GSSC for geolocation support.

(d) Resolution. Once the geographic area of the interference source is identified, and depending on the area, coordination through the combatant command responsible for the geographic area of the interference source may be requested to initiate discussions with the interference source owner. When the interference source is determined to be within the United States and its possessions (US & P), USSTRATCOM/GSSC will be contacted and requested to coordinate and resolve the interference. If coordination is not possible with the interfering source, and the interference is from OCONUS, the Joint Staff will initiate coordination through the appropriate combatant command and/or the DOS (Figure A-1).

1. When the interfering signal is emanating from a DOD unit, the supporting RSSC will coordinate with supported combatant command(s) to resolve the event. The resolution may require a change in frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other technical applications.

2. When the interfering signal is emanating from a US government source other than the DOD, the JSC and/or Joint Staff will coordinate the interference resolution with the affected combatant command component and the government agency responsible for the interference source. Resolution may require a user to change frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other technical fixes. If the interference cannot be resolved directly with the federal agency, the interference should be brought to the attention of the NTIA.

3. When the interfering signal is emanating from a US civilian source, the JSC and/or Joint Staff will coordinate a resolution solution with the FCC.

4. If interference to a CONUS unit is originating from OCONUS, the GSSC will coordinate a response with the appropriate combatant command responsible for the geographic area where the interference source is located. If direct military-to-military coordination with the host nation is not possible or is not likely to result in successful resolution of the EMI, the Joint Staff will initiate coordination with the host nation through DOS channels. The Joint Staff will also adjudicate any combatant command differences over the resolution of the interference/jamming.

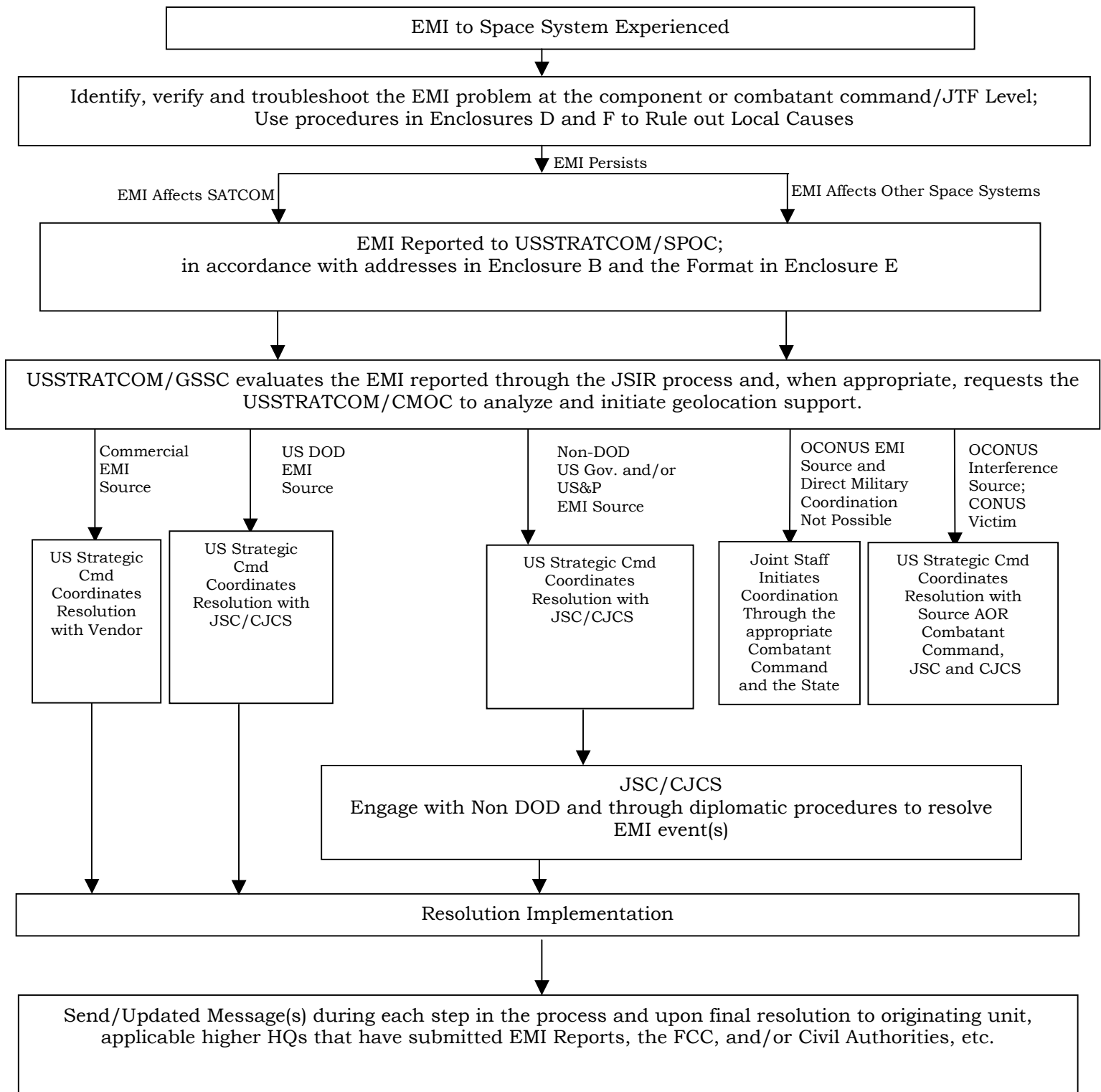


Figure A-1. Space System EMI Resolution Process

5. If the EMI is assessed to be originating from a radio frequency jammer, USSTRATCOM will contact the JIOC, the JSC, and the Joint Staff/J-6/J-3 DDIO (at a minimum) for further action and assistance.

(e) Feedback. During each step of the process, the originator of the report will be kept informed by the entity responsible for the assistance as to the progress of the interference investigation. When an EMI event is closed out, by eliminating the interference source, by determining an “unusable” status or condition due to the interference, or because the interference ceased, a closing report will be provided to the originator by the highest resolving authority.

(f) Timeline. Units experiencing interference must report it to higher headquarters within 4 hours from the start of the incident. The 4-hour period will be used to determine any equipment malfunction, system anomaly, or other local causes. USSTRATCOM will advise status and disposition of JSIR support requests within 24 hours and, as appropriate, will update upon any change until EMI is resolved or geolocated. Combatant command/JTF personnel will have 72 hours to further evaluate the interference and then report the incident and request further assistance from USSTRATCOM.

(2) GPS

(a) Identification/Verification. The unit experiencing the interference will use the procedures provided in Enclosures D and F to locally rule out causes, such as defective equipment or other variables such as space weather.

(b) Characterization and Reporting Procedures. If the interference/jamming is present, the unit will determine the characteristics of the interference/jamming to allow further analysis by higher headquarters. A message will be generated including: the details of the event, steps taken to resolve the event, any characterization data of the interference/jamming signal, and a statement indicating whether on-site resolution support is required. Message addressee for the report and the formats of the messages are contained in Enclosures B and E, respectively. Timely reporting of the interference/jamming is critical due to the potential hazards and impacts to navigation systems, weapons systems, command and control systems, and safety of life issues associated with GPS. Each succeeding higher headquarters will attempt to make a determination as to the source of the interference/jamming and add any additional available information to the original interference report as required.

(c) Geolocation. When interference is determined to be originating on either the L1 or L2 frequency, the interference will be reported immediately to the GPS Support Center for further analysis and submission for geolocation support.

(d) Resolution. Once the geographic area of the interference source is known and depending on the area, coordination through the combatant command responsible for the geographic area of the interference source may be requested to initiate discussions with the interference source owner. If direct military-to-military coordination with the host nation is not possible or is not likely to result in successful resolution of the EMI, then the Joint Staff will initiate coordination with the host nation through DOS channels. Where the interference source is determined to be within the US&P, USSTRATCOM will be notified and requested to help resolve the interference.

1. When the interfering signal is emanating from a DOD unit, USSTRATCOM will coordinate with appropriate frequency management authorities to resolve the problem. The resolution may require a change of frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other technical fixes.

2. When the interfering signal is emanating from a US government source other than the Department of Defense, the JSC will coordinate the interference resolution with the affected combatant command component and the US government agency responsible for the interference source.

3. When the interfering signal is emanating from a civilian source, the JSC will coordinate a response with the FCC, Federal Aviation Administration, and US Coast Guard Navigation Center.

4. The cost of implementing resolution measures will be the responsibility of the combatant command component that owns the affected system.

5. If the EMI is assessed to be originating from an RF jammer, USSTRATCOM will contact the JSC, JIOC, and the Joint Staff/J-6/J-38/J-3 DDIO (at a minimum) for further action and assistance.

(e) Feedback. During each step in the process, the originator of the report will be kept informed as to the progress of the interference investigation. When an event is closed out, by eliminating the interference source, by determining that an area is degraded or unusable for GPS usage due to the interference, or because the interference ceased, a closing report will be provided to all interested parties.

(f) Timeline. Units experiencing interference must report it to higher headquarters within 4 hours from the start of the incident. The 4-hour period will be used to determine any equipment malfunction, system anomaly, or other local causes. GPS Support Center/combatant command/JTF personnel will have 72 hours to further evaluate the interference and coordinate with other agencies for assistance, as appropriate.

(3) Other Space Systems. For the purposes of this manual, other space systems are defined as any space system other than MILSATCOM or GPS. These systems include the ground, space, and control segments. Additionally, it encompasses the TT&C systems. Other space systems include, but are not limited to the Defense Support Program (DSP), classified space systems, and others.

(a) Identification/Verification. The unit experiencing the interference will use the procedures provided in Enclosures D and F to locally rule out causes, such as equipment problems, non-existent/invalid frequency assignments, or space weather.

(b) Characterization and Reporting Procedures. If the interference/jamming is present, the unit will determine the characteristics of the interference/jamming to allow further analysis by higher headquarters. A message will be generated including: the details of the problem, what steps have been taken to resolve the problem, any characterization of the interference/jamming signal, and a statement indicating whether on-site resolution support is needed. Message addressee for the report and the format of the messages is contained in Enclosures B and E, respectively. Each succeeding higher headquarters will attempt to make a determination as to the source of the interference/jamming and add any details to the original interference report as required. Classified systems will continue to report and resolve harmful interference in accordance with existing agreements with the JSC.

(c) Geolocation. When interference is determined to be originating on the frequency of a space sensor or the TT&C frequencies, the interference will be reported to USSTRATCOM for geolocation support.

(d) Resolution. Once the geographic area of the interference source is identified and depending on the area, coordination through the combatant command responsible for the geographic area of the interference source may be requested to initiate discussions with the interference source owner. When the interference source is determined to be within the US&P, USSTRATCOM will be contacted to help resolve the interference by coordination or to provide on-site geolocation. If there is no coordination possible with the interference source

owner, and the interference is from OCONUS, then the Joint Staff will initiate coordination through the appropriate combatant command and/or the DOS.

1. When the interfering signal is emanating from a DOD unit, USSTRATCOM will coordinate with appropriate frequency management authorities to resolve the problem. The resolution may require a user to change frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other technical fixes.

2. When the interfering signal is emanating from a US government source other than the Department of Defense, USSTRATCOM will coordinate the interference resolution with the affected combatant command component and the US government agency responsible for the interference source. Resolution may require a user to change frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other technical fixes.

3. When the interfering signal is emanating from a US civilian source, USSTRATCOM will coordinate a possible resolution with the FCC.

4. If an interference case to a CONUS unit is originating OCONUS, USSTRATCOM will coordinate a response with the appropriate combatant command responsible for the geographic area where the interference source is located. If direct military-to-military coordination with the host nation is not possible or is not likely to result in successful resolution of the EMI, then the Joint Staff will initiate coordination with the host nation through DOS channels. The Joint Staff will also adjudicate any combatant command differences over the resolution of the interference/jamming.

5. The cost of implementing resolution measures will be the responsibility of the combatant command component that owns the affected system.

6. If the EMI is assessed to be originating from a RF jammer, USSTRATCOM will contact the JSC, JIOC, and the Joint Staff/J-6/J-3 DDIO (at a minimum) for further action and assistance.

(e) Feedback. During each step of the process, the originator of the report will be kept informed by the entity responsible for the assistance as to the progress of the interference investigation. When an EMI event is closed out, by eliminating the interference source, by determining an "unusable" status or condition due to the interference, or because the interference ceased, a closing report will be provided to the originator and all involved and applicable parties.

(f) Timeline. Units experiencing interference must report it to higher headquarters within 4 hours from the start of the incident. The 4-hour period will be used to determine any equipment malfunction, system anomaly, or other local causes. Combatant command/JTF personnel will have 72 hours to further evaluate the interference and then coordinate with other agencies for assistance, as appropriate.

(4) Commercial Space Systems. This section applies to DOD communications carried on leased commercial satellite systems. Special DOD interference procedures apply to the commercial space systems since the DOD does not control the spectrum used by the commercial satellite sector and does not control operation of the systems. The commercial space providers are responsible for determining the cause and source of interference to their systems. DOD users that experience interference to traffic on commercial systems are to report the interference directly to the commercial SATCOM provider in accordance with their leasing agreement. The EMI must also be reported to the RSSC, DISA (responsible for commercial SATCOM leases), combatant commands, USSTRATCOM/SPOC, and the JSC for the purposes of EA assessment and EMI trend analysis. Many commercial SATCOM providers have contracts with commercial geolocation services that can help identify interference sources. If the EMI is assessed to be originating from a RF jammer, USSTRATCOM will contact the JIOC, JSC, and the Joint Staff/J-6/J-38/J-3 DDIO (at a minimum) for further action and assistance.

b. Terrestrial. Terrestrial interference events are to be handled at the lowest level possible, and if no resolution is possible at that level, the problem must be elevated up the chain of command with each higher level attempting resolution.

(1) CONUS. In cases of terrestrial interference within CONUS, the Service owning or operating the affected system will be responsible for resolving the interference. The following steps are to be taken to resolve interference (or potential jamming), as shown in Figure A-2:

(a) Identification/Verification. The unit experiencing the interference will use the procedures provided in Enclosures D and F to locally rule out causes, such as equipment problems, non-existent/invalid frequency assignments, or space weather.

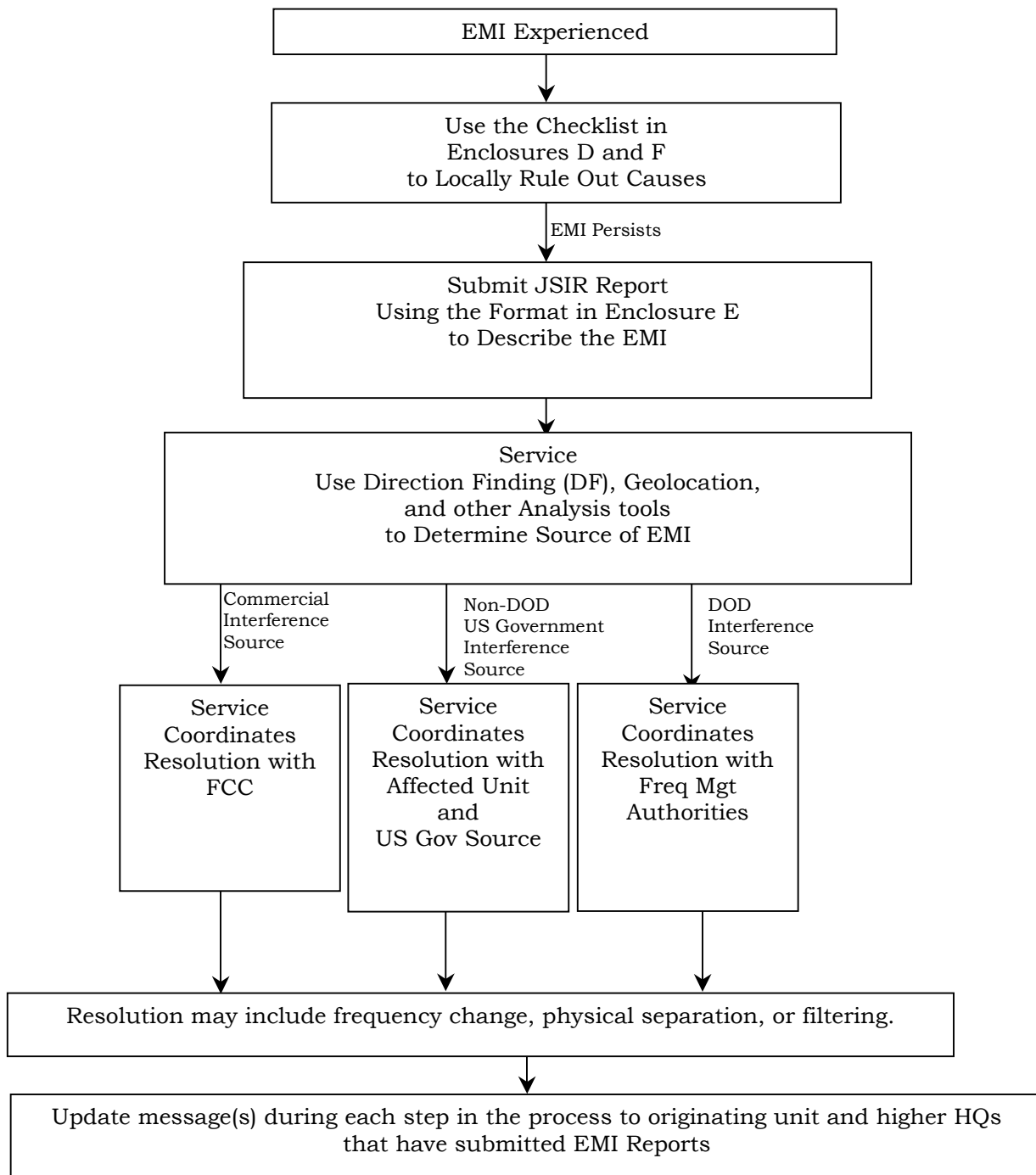


Figure A-2. CONUS Terrestrial JSIR Process

(b) Characterization and Reporting Procedures. If the interference is present, the unit will determine the characteristics of the interference to allow further analysis by higher headquarters. A message will be generated including: the details of the problem, what steps have been taken to resolve the problem, any characterization of the interference signal, and a statement indicating whether on-site resolution support is needed. Message addressee for the report and the formats of the messages are contained in Enclosures B and E, respectively. Each succeeding higher headquarters will attempt to make a determination as to the source of the interference and add any details to the original interference report as required.

(c) Geolocation. Each Service will have the capability of providing direction finding (DF) and geolocation services to the units in the field. When Service resources are exhausted prior to resolving an incident, the JSC can be contacted to provide analytical, DF, and geolocation support. This no-cost support will be provided by the JSC.

(d) Resolution. When the interfering signal is emanating from a DOD unit, the Service will coordinate with appropriate frequency management authorities to resolve the problem. The resolution may require a change of frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other technical fixes.

1. When the interfering signal is emanating from a US government source other than the Department of Defense, the Service will coordinate the interference resolution with the Service and the US government agency responsible for the interference source. Resolution may require a user to change frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other technical fixes.

2. When the interfering signal is emanating from a civilian source, the Service will coordinate a response with the FCC.

3. The cost of implementing resolution measures will be the responsibility of the Service that owns the affected system.

(e) Feedback. During each step of the process, the originator of the report will be kept informed by the entity responsible for the assistance as to the progress of the interference investigation. When an EMI event is closed out, by eliminating the interference source, by determining an "unusable" status or condition due to the interference, or because the interference ceased, a closing report will be provided to the originator and all involved and applicable parties.

(f) Timeline. Units experiencing interference must report it to higher headquarters within 4 hours from the start of the incident. The 4-hour period will be used to determine any equipment malfunction, system anomaly, or other local causes. Service personnel will have 72 hours to further evaluate the interference and coordinate with other agencies for assistance, as appropriate.

(2) OCONUS. In cases of terrestrial interference outside the CONUS, the combatant command/JTF using the affected system is responsible for resolving the interference. Terrestrial interference events are to be handled at the lowest level possible, and if no resolution is possible at that level, the problem will be referred through the chain of command with each higher level attempting resolution. Interference and jamming are to be considered synonymous until a determination can be made as to the source of the problem. The only difference between interference and jamming is the intent of the operator of the interfering transmitter. The following steps are to be used as a guide, when specific combatant command guidance is not available, to resolve interference (or potential jamming), as shown in Figure A-3.

(a) Identification/Verification. The unit experiencing the interference will use the procedures provided in Enclosures D and F to locally rule out causes, such as equipment problems, non-existent/invalid frequency assignments, or space weather.

(b) Characterization and Reporting Procedures. If the interference/jamming is present, the unit will characterize the interference/jamming to allow further analysis by higher headquarters. If the interference/jamming is still present, and the receive equipment is determined to be operating correctly with a valid frequency assignment, the problem will be referred up the chain of command. A message will be generated including: the details of the problem, what steps have been taken to resolve the problem, any characterization of the interference/jamming signal, and a statement indicating whether on-site resolution support is needed. Message addressee for the report and the formats of the messages are contained in Enclosures B and E, respectively. Each succeeding higher headquarters will attempt to make a determination as to the source of the interference/jamming and add any details to the original interference report as required.

(c) Geolocation. Each Service will have the capability of providing DF and geolocation services to the units in the field, and will use them at this point. Combatant command/JTF J-2 intelligence collection assets should be used if not prohibited by regulation or treaty. If available, host nation DF and geolocation assistance can be requested through the combatant command JFMO. When combatant command component resources are exhausted prior to resolving an incident, the JSC can be contacted to provide analytical, DF, and geolocation support. This no-cost support will be provided by the JSC.

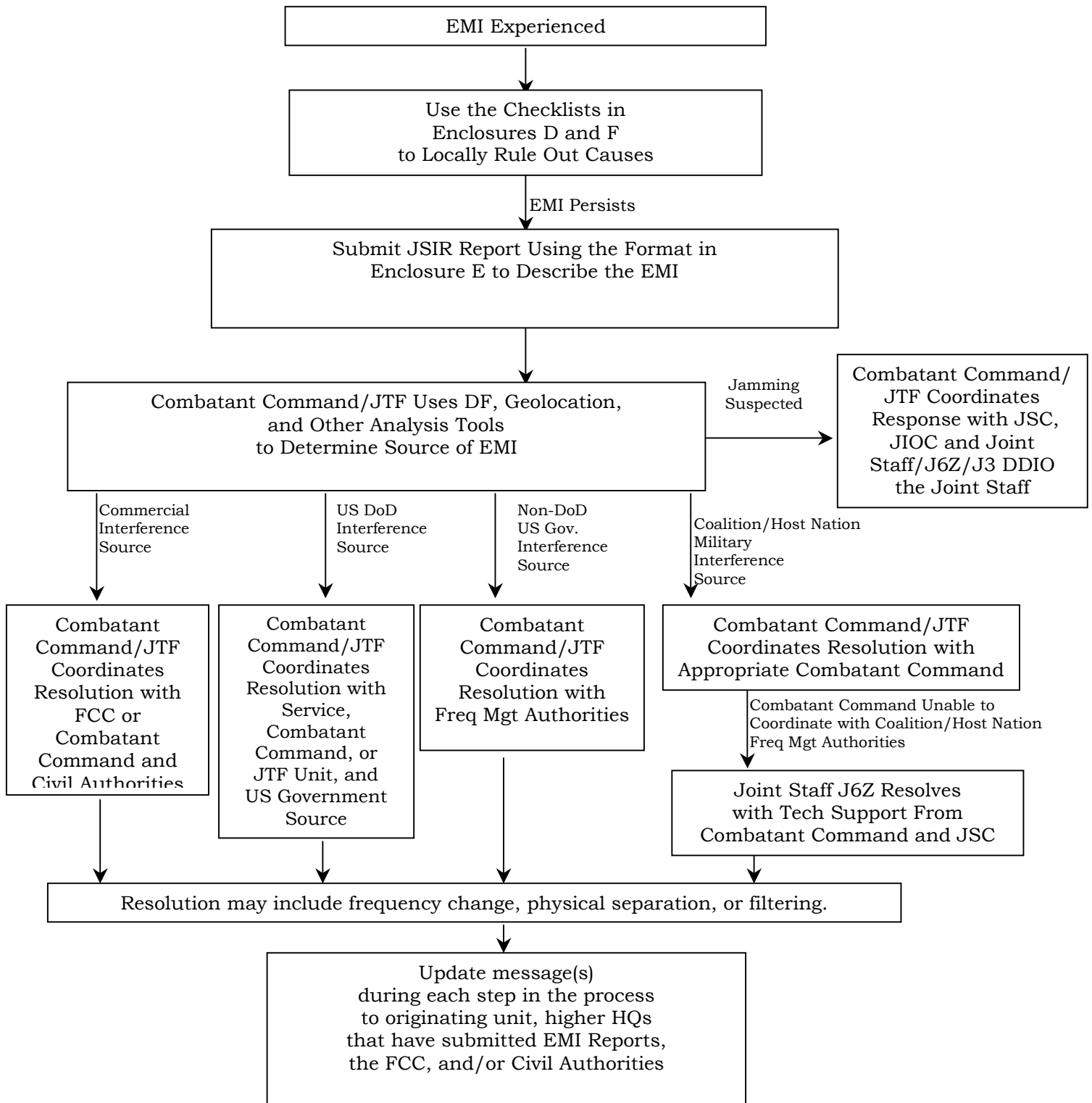


Figure A-3. OCONUS Terrestrial JSIR Process

(d) Resolution. When the interfering signal is emanating from DOD operations, the combatant command/JTF will coordinate with appropriate frequency management authorities to resolve the problem. The resolution may require a user to change frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other technical adjustments.

1. When the interfering signal is emanating from a coalition military or host-nation transmitter, the combatant command/JTF will coordinate with the appropriate combatant command for resolution. In cases where the combatant command is unable to coordinate with the coalition frequency management authorities, the Joint Staff J-6Z, with notification to the J-6B, will act as the focal point for resolution with assistance from the combatant command, JSC, and the DOS.

2. When the interfering signal is emanating from a US government source other than the Department of Defense, the combatant command/JTF will coordinate the interference resolution with the affected combatant command component and the US government agency responsible for the interference source. Resolution may require a user to change frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other technical fixes.

3. When the interfering signal is emanating from a civilian source, located within the US&P the combatant command/JTF will coordinate with the Joint Staff/J-6B to obtain assistance from the FCC.

4. If the EMI is assessed to be originating from a jammer, the combatant command/JTF will contact the JSC, JIOC, and the Joint Staff/J-6/J-3 DDIO for further action and assistance.

(e) Feedback. During each step of the process, the originator of the report will be kept informed by the entity responsible for the assistance as to the progress of the interference investigation. When an EMI event is closed out, by eliminating the interference source, by determining an “unusable” status or condition due to the interference, or because the interference ceased, a closing report will be provided to the originator and all involved and applicable parties by the highest resolution authority.

(f) Timeline. Units experiencing interference must report it to higher headquarters within 4 hours from the start of the incident. The 4-hour period will be used to determine any equipment malfunction, system anomaly, or other local causes. Combatant command/JTF personnel will have 72 hours to

further evaluate the interference and coordinate with other agencies for assistance, as appropriate.

7. EMI Reporting

a. EMI Characterization. It is important to characterize the EMI as completely and accurately as possible when reporting it. Little can be done to resolve the EMI until the problem is adequately characterized. However, the initial report should not be held up because some information is not immediately available. Use follow-up reports to provide additional information, as it becomes available.

b. EMI Reporting. EMI events will be reported using the format specified in Enclosure E. All reports of jamming will be submitted via secure means. The JSC has a 24-hour capability for receiving interference reports; see Enclosure G. SPECTRUM XXI software may be used to generate a report of interference.

c. Security Classification of Interference Report. The originator of the interference report must classify the report appropriately by evaluating the security sensitivity of the interference on the affected system and by considering the classification of the text contents. Guidelines for classifying interference incidents are contained in Enclosure C.

d. Precedence. EMI reports will be assigned precedence consistent with the urgency of the reported situation. Guidelines for setting the precedence for interference incidents are contained in Enclosure C.

e. Report Address. Each military unit must submit reports through its appropriate chain of command to its major or unified command or Combatant Command/JTF level, local spectrum manager, cognizant AFC (CONUS EMI only), and to the engineering agency responsible for interference resolution for its DOD component, in accordance with established Service reporting procedures. Information copies of all interference incident reports (both terrestrial and space-based systems) should be sent to the JSC for inclusion in the JSIR database. Enclosure B specifies the minimum message addressee.

f. EMI Message Report Format. See Enclosure E.

8. Costs

a. The Services will provide the staffing and funding for the development of the necessary instructions and manuals to provide interference resolution guidelines to their respective Service.

b. Costs of local interference resolution efforts, i.e., up to the Service, JTF, or combatant command levels, will be the responsibility of the affected units, Service, JTF, or combatant command. The combatant command/Service/JTF is authorized to negotiate cost reimbursement from the interfering source, if the other entity is responsible for the interference and is in non-compliance with appropriate spectrum management regulations.

(1) The United States Air Force provides funding for the interference resolution and Quick Fix Interference Reduction Capability (QFIRC) services provided by the 738 Engineering Installation Squadron (EIS) for the USAF (salaries, test equipment, special purpose vehicles, etc.). The travel costs associated with deploying these 738 EIS services are funded by the Air Force Frequency Management Agency (AFFMA).

(2) Any costs associated with technical changes to equipment or systems to mitigate the interference will be the responsibility of the combatant command component that owns the affected system.

(3) JSC support to determine the source of the interference will be provided at no cost to the warfighter, subject to available funding.

ENCLOSURE B

DMS AND AUTODIN MESSAGE ADDRESSEE

1. Combatant Command/JTF/Service Requests for JSC JSIR Support.
Combatant command/JTF/Service requests for JSC JSIR support in the resolution of persistent and recurring interference should be sent via the Defense Message System (DMS) or AUTODIN (until phased out), with a message subject of "REQUEST FOR JSIR SUPPORT", to the following addressee (NOTE THAT ALL DMS ADDRESSEE ARE FOR THE CLASSIFIED DMS SYSTEM):

Action:

(DMS) JSC-J3 (s)
(AUTODIN) JSC ANNAPOLIS MD//J3//

2. Reports Affecting MILSATCOM Systems. All space system incident reports affecting MILSATCOM systems must be sent to:

Action (DMS)

HQ USSPACECOM PETERSON AFB
CO////J36/J36S/J36P////
USSTRATCOM OFFUTT AFB
NE////J3612/J66/J661/J663////
(For the appropriate Region)
RSSC CONUS MACDILL AFB FL
RSSC EUROPE VAIHINGEN GE
RSSC PACIFIC WHEELER AAF HI
GSSC PETERSON AFB CO
JOINT STAFF WASHINGTON DC////J6Z//// (Priority One and
JCS channels)

INFO (DMS)

JSC-J3 (s)

Chain of command of reporting unit

Local Spectrum Manager

Cognizant Area Frequency Coordinator (CONUS EMI)

Supporting satellite operations center

CMOC SCC CHEYENNE MOUNTAIN AFS CO

Military Department POC

Cognizant Combatant Command or JTF JSME

DSCS NETWORK MANAGER WASHINGTON DC (DSCS interference
only)

HQ AFWA OFFUTT AFB NE/////XOGS///// (Space weather and other natural phenomena effect issues only)
DIRNSA FT GEORGE G MEADE MD/////PIW34 /////
DIA WASHINGTON DC//TWI-3A//CL/DCCC SCO//
DISA WASHINGTON DC///// D314-1/TWI-3A//D34-F///// (DSCS)
DISAGNOSC WASHINGTON DC (DSCS & Commercial)
DISA EUR VAIHINGEN GE/////RNOSC///// (DSCS & Commercial)
DISA PAC WHEELER AAF HI/////RNOSC///// (DSCS & Commercial)
DISA SCOTT AFB IL/////RNOSC/////

COMNAVSPACECOM DAHLGREN VA/////N33/////

HQ AFSPC PETERSON AFB CO/////DOR/DOIP/DOXP///// (USAF)

AFSPACE VANDENBERG AFB CA/////A3/A33///// (USAF)

COMARSPACE COLORADO SPRINGS CO///// SMDC-AR-OS///// (DSCS)

COMNAVCOMTELCOM WASHINGTON DC/////N3/N32///// (for USN)

COMNAVSECGRU FT GEORGE G MEADE MD/////N6///// (for USN)

NAVEMSCEN WASHINGTON DC/////00/10/30///// (for USN/USMC)

ARMY SPECTRUM MGR-USACESO WASHINGTON DC/////SFIS-FAC-P///// (for USA)

AFFMA ALEXANDRIA VA/////SCM///// (for USAF)

JOINT STAFF WASHINGTON DC/////J6Z///// (All other MILSATCOM channels)
(For the appropriate Region)

JCMA FT GEORGE G MEADE MD/////X52/X524/PISCES/////

BAD AIBLING STATION BAD AIBLING

GERMANY/////F7633/FIREBACK/////

CDR MENWITH HILL STATION HARROGATE

UK/////F773C/SPRINKLER/////

NCPAC HONOLULU HI/////F405/WATERCUP///// (For the appropriate Region)

NCTAMS EURCENT NAPLES IT/////N3/N30/JFTOC/////

NCTAMS LANT NORFOLK VA/////N3/N31/JFTOC/////

NCTAMS PAC HONOLULU HI/////N3/N35/JFTOC/////

738 EIS KEESLER AFB MS/////EEEM///// (for USAF)

HQ USEUCOM VAIHINGEN GE/////JFMO/ECJ6-F/////

Communications Squadron/Facility (for appropriate to affected & adjacent areas)

Action (AUTODIN):

HQ USSPACECOM PETERSON AFB CO//J36/J36S/J36P//
USSTRATCOM OFFUTT AFB NE//J3612/J66/J661/J663//
(For the appropriate Region)
RSSC CONUS MACDILL AFB FL
RSSC EUROPE VAIHINGEN GE
RSSC PACIFIC WHEELER AAF HI
GSSC PETERSON AFB CO
JOINT STAFF WASHINGTON DC//J6Z// (Priority One and JCS
channels)

Info (AUTODIN):

Chain of command of reporting unit
Local spectrum manager
Cognizant Area Frequency Coordinator (CONUS EMI)
Supporting satellite operations center
CMOC SCC CHEYENNE MOUNTAIN AFS CO//
JSC ANNAPOLIS MD//J3//
Military Department POC
Cognizant Combatant Command or JTF JSME
DSCS NETWORK MANAGER WASHINGTON DC (DSCS interference
only)
HQ AFWA OFFUTT AFB NE//XOGS// (Space weather and other
natural phenomena effect issues only)
DIRNSA FT GEORGE G MEADE MD//PIW34//
DIA WASHINGTON DC//TWI-3A//CL/DCCC SCO
DISA WASHINGTON DC// D314-1/D34-F// (DSCS)
DISAGNOSC WASHINGTON DC (DSCS & Commercial)
DISA EUR VAIHINGEN GE//RNOSC// (DSCS & Commercial)
DISA PAC WHEELER AAF HI//RNOSC// (DSCS & Commercial)
DISA SCOTT AFB IL//RNOSC//
COMNAVSPACECOM DAHLGREN VA//N33//
HQ AFSPC PETERSON AFB CO//DOR/DOIP/DOXP// (USAF)
AFSPACE VANDENBERG AFB CA//A3/A33// (USAF)
COMARSPACE COLORADO SPRINGS CO// SMDC-AR-OS//
(DSCS)
COMNAVCOMTELCOM WASHINGTON DC//N3/N32// (for USN)
COMNAVSECGRU FT GEORGE G MEADE MD//N6// (for USN)
NAVEMSCEN WASHINGTON DC//00/10/30// (for USN/USMC)
ARMY SPECTRUM MGR-USACESO WASHINGTON DC//SFIS-FAC-
P (for USA)
AFFMA ALEXANDRIA VA//SCM// (for USAF)
JOINT STAFF WASHINGTON DC//J6Z// (All other MILSATCOM
channels)
(For the appropriate Region)

JCMA FT GEORGE G MEADE MD//X52/X524/PISCES//
BAD AIBLING STATION BAD AIBLING
GERMANY//F7633/FIREBACK//
CDR MENWITH HILL STATION HARROGATE
UK//F773C/SPRINKLER//
NCPAC HONOLULU HI//F405/WATERCUP//
(For the appropriate Region)
NCTAMS EURCENT NAPLES IT//N3/N30/JFTOC//
NCTAMS LANT NORFOLK VA//N3/N31/JFTOC//
NCTAMS PAC HONOLULU HI//N3/N35/JFTOC//
738 EIS KEESLER AFB MS//EEM// (for USAF)
HQ USEUCOM VAIHINGEN GE//JFMO/ECJ6-F//
Communications Squadron/Facility (for appropriate to affected &
adjacent areas)

3. Reports Affecting GPS Space Systems. All GPS space system incident reports must be sent to:

ACTION (DMS):

HQ USSPACECOM PETERSON AFB
CO////J33/J330/GSC/J36/J36S/J36P////
USSTRATCOM OFFUTT AFB NE////J3612////
GPS SUPPORT CENTER SCHRIEVER AFB CO
SPACEAF////A3/A33////

INFO (DMS):

Chain of command of reporting unit
Local spectrum manager
Cognizant Area Frequency Coordinator
CMOC SCC CHEYENNE MOUNTAIN AFS CO
JSC-J3 (s)
HQ AFWA OFFUTT AFB NE////XOGS//// (Space weather and
other natural phenomena effect issues only)
Cognizant Combatant Command or JTF JSME
DIRNSA FT GEORGE G MEADE MD////PIW34////
DIA WASHINGTON DC//TWI-3A//CL/DCCC SCO//

Action (AUTODIN):

HQ USSPACECOM PETERSON AFB
CO//J33/J330/GSC/J36/J36S/J36P//
USSTRATCOM OFFUTT AFB NE//J3612//
GPS SUPPORT CENTER SCHRIEVER AFB CO

Info (AUTODIN):

Chain of command of reporting unit
Local spectrum manager

Cognizant Area Frequency Coordinator
CMOC SCC CHEYENNE MOUNTAIN AFS CO//
JSC ANNAPOLIS MD//J3//
HQ AFWA OFFUTT AFB NE//XOGS// (Space weather and other
natural phenomena effect issues only)
Cognizant Combatant Command or JTF JSME
DIRNSA FT GEORGE G MEADE MD//PIW34//
DIA WASHINGTON DC//TWI-3A//CL/DCCC SCO //

4. Other Space System Related Reports. All other space system (not MILSATCOM or GPS) incident reports must be sent to:

ACTION (DMS):

HQ USSPACECOM PETERSON AFB CO////J36/J36S/J36P////
USSTRATCOM OFFUTT AFB NE////J3612////

INFO (DMS):

Chain of command or reporting unit

Local spectrum manager

Cognizant Area Frequency Coordinator

NRO WASHINGTON DC////COM/OSF////

CMOC SCC CHEYENNE MOUNTAIN AFS CO

JSC-J3

Military Department POC

Cognizant Combatant Command or JTF JSME

HQ AFWA OFFUTT AFB NE////XOGS//// (Space weather and
other natural phenomena effect issues only)

DIRNSA FT GEORGE G MEADE MD////PIW34////

DIA WASHINGTON DC//TWI-3A//CL/DCCC SCO ////

AFFMA ALEXANDRIA VA////SCM//// (for Air Force incidents)

ARMY SPECTRUM MGR-USACESO WASHINGTON DC////SFIS-
FAC-P//// (for Army incidents)

NAVEMSCEN WASHINGTON DC////10/30//// (for Navy/Marine
Corps incidents)

738 EIS KEESLER AFB MS////EEEM//// (for USAF)

Action (AUTODIN):

HQ USSPACECOM PETERSON AFB CO//J36/J36S/J36P//

Info (AUTODIN):

Chain of command or reporting unit

Local Spectrum Manager

Cognizant Area Frequency Coordinator

NRO WASHINGTON DC//COM/OSF//

CMOC SCC CHEYENNE MOUNTAIN AFS CO//

JSC ANNAPOLIS MD//J3//

Military Department POC
Cognizant Combatant Command or JTF JSME
HQ AFWA OFFUTT AFB NE//XOGS// (Space weather and other
natural phenomena effect issues only)
DIRNSA FT GEORGE G MEADE MD//PIW34//
DIA WASHINGTON DC//TWI-3A//CL/DCCC SCO //
AFFMA ALEXANDRIA VA//SCM// (for Air Force incidents)
ARMY SPECTRUM MGR-USACESO WASHINGTON DC//SFIS-FAC-
P// (for Army incidents)
NAVEMSCEN WASHINGTON DC//10/30// (for Navy/Marine
Corps incidents)
738 EIS KEESLER AFB MS//EEEM// (for USAF)

5. Suspected Jamming/Hostile Electronic Attack Incidents. Suspected jamming/hostile EA incidents for all terrestrial and space systems must be sent to:

ACTION (DMS):

JSC-J3
HQ USSPACECOM PETERSON AFB CO/////J36/J36S/J36P///// (for attacks on all space systems) GSSC PETERSON AFB CO (for attacks on MILSATCOM)
GPS SUPPORT CENTER SCHRIEVER AFB CO (for attacks on GPS)

INFO (DMS):

JOINT STAFF WASHINGTON DC/////J6B/J6S/J6Z/////
CMOC SCC CHEYENNE MOUNTAIN AFS CO//
HQ USSPACECOM PETERSON AFB
CO/////J2/J3/J6/J6O/J6S/////

JIOC SAN ANTONIO TX/////J54/////

DIRNSA FT GEORGE G MEADE MD/////PIW34/////

DIA WASHINGTON DC//TWI-3A//CL/DCCC SCO /////

AFFMA ALEXANDRIA VA/////SCM///// (for Air Force incidents)

ARMY SPECTRUM MGR-USACESO WASHINGTON DC/////SFIS-FAC-P///// (for Army incidents)

NAVEMSCEN WASHINGTON DC/////10/30///// (for Navy/Marine Corps incidents)

Military Department POC
Cognizant Combatant Command or JTF JSME
HQ AFIWC KELLY AFB TX
DISA WASHINGTON DC/////D34-F/////

COMNAVSPACECOM DAHLGREN VA/////N33/////

NCTAMS EURCENT NAPLES IT/////N3/N30/JFTOC/////

NCTAMS LANT NORFOLK VA/////N3/N31/JFTOC/////

NCTAMS PAC HONOLULU HI/////N3/N35/JFTOC/////

Communications Squadron/Facility (for appropriate to affected & adjacent areas)

HQ AFSPC PETERSON AFB CO////DOR/DOIP/DOXP////
AFSPACE VANDENBERG AFB CA////A3/A33////
COMARSPACE COLORADO SPRINGS CO//// SMD-AR-OS////
738 EIS KEESLER AFB MS////EEEM//// (for USAF)
HQ USEUCOM VAIHINGEN GE////JFMO/ECJ6-F////

Action (AUTODIN):

JSC ANNAPOLIS MD//J3//
HQ USSPACECOM PETERSON AFB CO//J36/J36S/J36P// (for attacks on all space systems) GSSC PETERSON AFB CO (for attacks on MILSATCOM)
GPS SUPPORT CENTER SCHRIEVER AFB CO (for attacks on GPS)

Info (AUTODIN):

JOINT STAFF WASHINGTON DC//J6B/J6S/J6Z//
CMOC SCC CHEYENNE MOUNTAIN AFS CO//
HQ USSPACECOM PETERSON AFB CO//J2/J3/J6/J6O/J6S//
JIOC SAN ANTONIO TX//J54//
DIRNSA FT GEORGE G MEADE MD//PIW34//
DIA WASHINGTON DC//TWI-3A//CL/DCCC SCO //
AFFMA ALEXANDRIA VA//SCM// (for Air Force incidents)
ARMY SPECTRUM MGR-USACESO WASHINGTON DC//SFIS-FAC-P// (for Army incidents)
NAVEMSCEN WASHINGTON DC//10/30// (for Navy/Marine Corps incidents)
Military Department POC
Cognizant Combatant Command or JTF JSME
HQ AFIWC KELLY AFB TX
DISA WASHINGTON DC//D34-F//
COMNAVSPACECOM DAHLGREN VA//N33//
NCTAMS EURCENT NAPLES IT//N3/N30/JFTOC//
NCTAMS LANT NORFOLK VA//N3/N31/JFTOC//
NCTAMS PAC HONOLULU HI//N3/N35/JFTOC//
Communications Squadron/Facility (for appropriate to affected & adjacent areas)
HQ AFSPC PETERSON AFB CO//DOR/DOIP/DOXP//
AFSPACE VANDENBERG AFB CA//A3/A33//
COMARSPACE COLORADO SPRINGS CO// SMD-AR-OS//
738 EIS KEESLER AFB MS//EEEM// (for USAF)
HQ USEUCOM VAIHINGEN GE//JFMO/ECJ6-F//

8 November 2002

6. CONUS Terrestrial EMI. All terrestrial interference affecting systems operated in the CONUS must be reported to the cognizant Service Frequency Management Agency:

ACTION (DMS):

AFFMA ALEXANDRIA VA/////SCM///// (for Air Force incidents)
 ARMY SPECTRUM MGR-USACESO WASHINGTON DC/////SFIS-FAC-P///// (for Army incidents)
 NAVEMSCEN WASHINGTON DC/////10/30///// (for Navy/Marine Corps incidents)
 (Unified Theater Commander) /////J2/J3/J6/J62/J623///// (for affected Operational Component Commander [s])

INFO (DMS):

JSC-J3 (S)
 CNO WASHINGTON DC/////N61///// (USN)
 DA WASHINGTON DC/////DAMO-FDC///// (USA)
 HQ USAF WASHINGTON DC/////XOFE/XORR///// (USAF)
 CMC WASHINGTON DC/////C4I///// (USMC)
 COMDT COGARD WASHINGTON DC/////??/?/?/? (USCG)
 COMNAVCOMTELCOM WASHINGTON DC/////N3/N32///// (for USN/USMC)
 COMNAVSECGRU FT GEORGE G MEADE MD/////N6///// (for USN/USMC)
 NAVEMSCEN WASHINGTON DC/////00/10/30///// (for USN/USMC)
 ARMY SPECTRUM MGR-USACESO WASHINGTON DC/////SFIS-FAC-P///// (for USA)
 AFFMA ALEXANDRIA VA/////SCM///// (for USAF)
 HQ AFIWC KELLEY AFB TX (for USAF)
 SPAWARSSYSCEN SAN DIEGO CA/////D841///// (for USN/USMC)
 JFMO LANT NORFOLK VA/////xxx///// (as appropriate)
 JFMO PAC HONOLULU HI/////J613///// (as appropriate)
 738 EIS KEESLER AFB MS/////EEEM///// (for USAF)
 affected & adjacent regional NAVSECGRU activities
 other addressee as appropriate

Action (AUTODIN):

AFFMA ALEXANDRIA VA//SCM// (for Air Force incidents)
 ARMY SPECTRUM MGR-USACESO WASHINGTON DC//SFIS-FAC-P// (for Army incidents)
 NAVEMSCEN WASHINGTON DC//10/30// (for Navy/Marine Corps incidents)

(Unified Theater Commander) //J2/J3/J6/J62/J623// (for
affected Operational Component Commander [s])

Info (AUTODIN):

Chain of command of reporting unit

Local spectrum manager

Cognizant Area Frequency Coordinator

JSC ANNAPOLIS MD//J3//

CNO WASHINGTON DC//N61// (USN)

DA WASHINGTON DC//DAMO-FDC// (USA)

HQ USAF WASHINGTON DC//XOFE/XORR// (USAF)

CMC WASHINGTON DC//C4I// (USMC)

COMDT COGARD WASHINGTON DC//???// (USCG)

COMNAVCOMTELCOM WASHINGTON DC//N3/N32// (for
USN/USMC)

COMNAVSECGRU FT GEORGE G MEADE MD//N6// (for
USN/USMC)

NAVEMSCEN WASHINGTON DC//00/10/30// (for USN/USMC)

ARMY SPECTRUM MGR-USACESO WASHINGTON DC//SFIS-FAC-
P// (for USA)

AFFMA ALEXANDRIA VA//SCM// (for USAF)

HQ AFIWC KELLEY AFB TX (for USAF)

SPAWARSYSCEN SAN DIEGO CA//D841// (for USN/USMC)

JFMO LANT NORFOLK VA//xxx// (as appropriate)

JFMO PAC HONOLULU HI//J613// (as appropriate)

738 EIS KEESLER AFB MS//EEEM// (for USAF)

affected & adjacent regional NAVSECGRU activities

other addressee as appropriate

7. OCONUS Terrestrial EMI. All terrestrial interference affecting systems
operated OCONUS must be reported to the cognizant combatant command or
JTF:

ACTION (DMS):

Cognizant Combatant Command/JTF JSME

INFO (DMS):

Chain of command of reporting unit

Local spectrum manager

JSC-J3

CNO WASHINGTON DC////N61//// (for USN)

DA WASHINGTON DC////DAMO-FDC//// (for USA)

HQ USAF WASHINGTON DC////XOFE/XORR//// (for USAF)

Appropriate MAJCOM/MACOM frequency management authorities

CMC WASHINGTON DC////C4I//// (USMC)

COMDT COGARD WASHINGTON DC/////???(for USCG)
COMNAVCOMTELCOM WASHINGTON DC///N3/N32/// (for
USN/USMC)
COMNAVSECGRU FT GEORGE G MEADE MD///N6/// (for
USN/USMC)
NAVEMSCEN WASHINGTON DC///00/10/30/// (for
USN/USMC)
ARMY SPECTRUM MGR-USACESO WASHINGTON DC///SFIS-
FAC-P/// (for USA)
AFFMA ALEXANDRIA VA///SCM/// (for USAF)
HQ AFIWC KELLEY AFB TX (for USAF)
SPAWARSYSCEN SAN DIEGO CA///D841/// (for USN/USMC)
JFMO LANT NORFOLK VA///xxx/// (as appropriate)
JFMO PAC HONOLULU HI///J613/// (as appropriate)
738 EIS KEESLER AFB MS///EEEM/// (for USAF)
HQ USEUCOM VAIHINGEN GE///JFMO/ECJ6-F///
affected & adjacent regional NAVSECGRU activities
other addressee as appropriate

Action (AUTODIN):

Cognizant Combatant Command/JTF JSME

Info (AUTODIN):

Chain of command of reporting unit

Local spectrum manager

JSC ANNAPOLIS MD//J3//
CNO WASHINGTON DC//N61// (for USN)
DA WASHINGTON DC//DAMO-FDC// (for USA)
HQ USAF WASHINGTON DC//XOFE/XORR// (for USAF)
Appropriate MAJCOM/MACOM frequency management authorities
CMC WASHINGTON DC//C4I// (USMC)
COMDT COGARD WASHINGTON DC//???(for USCG)
COMNAVCOMTELCOM WASHINGTON DC//N3/N32// (for
USN/USMC)
COMNAVSECGRU FT GEORGE G MEADE MD//N6// (for
USN/USMC)
NAVEMSCEN WASHINGTON DC//00/10/30// (for USN/USMC)
ARMY SPECTRUM MGR-USACESO WASHINGTON DC//SFIS-FAC-
P// (for USA)
AFFMA ALEXANDRIA VA//SCM// (for USAF)
HQ AFIWC KELLEY AFB TX (for USAF)
SPAWARSYSCEN SAN DIEGO CA//D841// (for USN/USMC)
JFMO LANT NORFOLK VA//xxx// (as appropriate)
JFMO PAC HONOLULU HI//J613// (as appropriate)
738 EIS KEESLER AFB MS//EEEM// (for USAF)

CJCSM 3320.02
8 November 2002

HQ USEUCOM VAIHINGEN GE//JFMO/ECJ6-F//
affected & adjacent regional NAVSECGRU activities
other addressee as appropriate

(INTENTIONALLY BLANK)

ENCLOSURE C

SECURITY CLASSIFICATION GUIDE AND MESSAGE PRECEDENCE
GUIDELINES

1. Security Classification Guide. Security classification of interference incidents/reports is determined principally by nationality and location of the implied or stated source of the interference and the security sensitivity of the affected military system. Stations located in combat areas or having a sensitive military mission generally must classify all interference reports. The following are guidelines for classifying interference incidents and reports:

a. The specific identification of an unfriendly platform or location by country or coordinates as the source of interference or EA will be classified as SECRET. Reason: 1.5(c), Declassify on: X1.

b. Specific susceptibility or vulnerability of US electronic equipment/systems will be classified at a minimum level of SECRET. Reason: 1.5(g), Declassify on: X3. The classification guide for the affected system should be consulted for specific guidance.

c. Parametric data of classified US electronic equipment/systems will be classified in accordance with the classification guide for the equipment affected. Classify correspondence equal to the security category assigned to the affected system.

d. Suspected interference from unidentified sources while operating in or near hostile countries will be classified SECRET. Reason: 1.5(g), Declassify: 10 years from date of incident.

e. Interference to US electromagnetic equipment/systems caused by EA exercises in foreign nations will be classified as CONFIDENTIAL. Reason: 1.5(g), Declassify on: X5.

f. Suspected interference from friendly sources can be treated as UNCLASSIFIED unless it reveals a specific system vulnerability, in which case it will be classified at a minimum level of SECRET. Reason: 1.5(c), Declassify on: X3.

g. Suspected interference from unknown sources will be classified at a minimum level of CONFIDENTIAL. The classification guide for the affected system should be consulted for specific guidance.

h. When referring to JSIR and stating that JSIR analyses are a function of the JSC, reports will be UNCLASSIFIED.

2. Message Precedence Guidelines (AUTODIN Messages only). EMI reports will be assigned precedence consistent with the urgency of the reported situation. Use ROUTINE or PRIORITY precedence, unless the organization originating the report believes the incident is hazardous to military operations, air navigation, flight safety, a possible Dangerous Military Activities Agreement violation, or a SATCOM Priority One mission impact. For incidents in these categories, use IMMEDIATE precedence.

ENCLOSURE D

EMI CHARACTERIZATION AND RESOLUTION AT THE LOCAL LEVEL

1. EMI CHECKLIST

a. To resolve EMI locally, the checklist that follows and Enclosure F, Natural Phenomena Effects, should be consulted.

STEP	ACTION	COMPLETE Y/N
001	Start a log and collect as much information as possible.	
002	Record what interference sounds like. If appropriate measurement equipment is available, an attempt should be made to quantify the characteristics of the interference signal. These characteristics include the interfering source's center frequency, bandwidth, relative amplitude, modulation, direction of interference, time of occurrence, and any other characteristics that can be obtained.	
003	Geographical Information.	
003-01	Check with other units in the geographical area to determine the area affected.	
003-02	Verify exact location of receiver using GPS, if available.	
004	Determine interference start and stop times.	
005	Ensure affected system is operating correctly.	
005-01	Ensure all connectors are tight.	
005-02	Ensure antenna cables are in good condition.	
005-03	Have maintenance personnel ensure equipment is operating IAW technical manual specifications and frequency assignment parameters.	
006	Verify antenna is on the correct azimuth and elevation.	
007	Environment Information	
007-01	Contact all nearby units to determine if they have recently installed any new equipment.	
007-02	Check with equipment maintenance personnel to determine if the interference is the result of maintenance actions or an equipment malfunction. This should include non-RF equipment that can cause spark-type interference used to support the operation of RF equipment (e.g., thermostat-controlled devices, electric motors, welders, etc.)	
007-	Check to see if construction is being conducted in the	

STEP	ACTION	COMPLETE Y/N
03	immediate area.	
007-04	Determine whether the natural environment is the cause of the problem; see Enclosure F.	
008	Frequency Assignment Information	
008-01	Verify through service Component or JTF spectrum manager that a valid frequency assignment and/or satellite authorization exists.	
008-02	If no assignment exists, cease transmission and request new frequency.	
008-03	If valid assignment exists, change to alternate frequency and determine if interference is present. If interference is to a satellite communications system, skip to step 9.	
008-04	If a valid assignment exists and the interference goes away after changing to an alternate frequency, submit an interference report through next higher headquarters and info JSC.	
008-05	Where co-channel or adjacent channel interference is suspected (i.e., the interfering signal overlaps the operating bandwidth of the victim receiver), check with local and area frequency management personnel to determine if other locally operated equipment has been recently assigned a co-channel or adjacent channel frequency.	
009	Satellite Communications Interference for MILSATCOM	
009-01	Net Control Station should contact the supporting SSC and determine if they can identify interference on the satellite. A determination must be made at this time as to whether the interference is on the uplink or downlink of the satellite channel. If two or more users separated by 300 miles are observing the same interference, the interference is likely on the uplink.	
009-02	If no interference is present on the satellite uplink frequency, request to be switched to an alternate channel in a different part of the frequency band.	
009-03	If SSC reports a steady receive key (SRK) on the channel, have all users vacate the net.	
009-04	Once all users are off the net, contact SSC and ask if the SRK is present.	
009-05	If SRK is gone, have users re-access the net one at a time while SSC monitors; once the user that was causing the interference moves back onto the net the SRK will re-appear.	
009-	If SRK is present, request another channel for testing. Have	

STEP	ACTION	COMPLETE Y/N
06	users move to the new channel, one at a time, while monitoring the channel.	
009-07	Once all users have moved to new channel, determine if SRK is present on the original channel.	
009-08	If SRK is present on original channel, initiate a harmful interference report.	
010	Combatant command or JTF will request JSC support to help resolve interference to terrestrial systems.	
011	Combatant command or JTF will request resources to support interference resolution to space systems.	
012	Provide feedback through the chain of command to the affected unit of actions taken and the resolution.	

b. Each unified command, JTF, and Military Department is required to establish procedures that are to be maintained locally. These local procedures will address the role of the local base/post/camp/station spectrum manager, and will define specific procedures that are unique to their installations and systems under their purview.

c. Each Service is responsible for establishing Service-unique interference resolution processes that provide guidance and interference resolution support to their subordinate commands. This guidance has been promulgated in the following documents:

Air Force: AFI 10-707
Army: AR 5-12
Navy: NTP-6
Marine Corps: MCO 2400.2

d. Service components may obtain interference resolution assistance from the appropriate Area Frequency Coordinator, USJFCOM, or Service points of contacts:

Area Frequency Coordinators:
JFMO Alaska: DSN: 317-552-2283
AFC Arizona: DSN 879-6423
AFC White Sands Missile Range: DSN 258-3702
Eastern AFC DSN: 854-5837
AFC Puerto Rico: DSN 831-5227
Western AFC: DSN 351- 7983
Gulf AFC: DSN 872-4416
DoD AFC Nellis AFB: DSN 682-3417

AFC MIDLANT: DSN 342-1532/1194
AFC HAWAII includes Guam (JFMOPAC): DSN 477-1051/52/53/54
JFMO LANT: DSN 836-8010/5436

Air Force: Air Force Frequency Management Agency, Washington DC,
DSN 328-1506, commercial (703) 428-1506
738 Engineering Installation Squadron, Keesler AFB MS, DSN 597-3920,
commercial (228) 377-3920
Army: Army C-E Services Washington DC, DSN 221-8226, commercial
(703) 325-8226
Navy/Marine Corps: NAVEMSCEN, Washington DC, DSN 221-2804,
commercial (703) 325-2804

e. For unified commands, the instructions or procedures to follow for
interference resolution are as follows:

Central Command	CCR 105-3, Chapter III, Annex 4
European Command	Spectrum Management Manual, dated June 2002, Chapter 7, http://www1.eucom.smil.mil/ecj6-f/smmpage.htm
Joint Forces Command	UHF SATCOM: USCINCOM 152000ZJAN99, <u>UHF MILSATCOM RADIO FREQUENCY INTERFERENCE (RFI) PROCEDURES (UHF SATCOM ONLY)</u> ; Other systems: No combatant command specific guidance
Pacific Command	USPACOM Joint Electromagnetic Spectrum Management Instruction (JESMI) 2400.1G
Southern Command	SCR 105-1, Chapter 6
Special Operations Command	No combatant command specific guidance
Strategic Command	No combatant command specific guidance
Transportation Command	No combatant command specific guidance

ENCLOSURE E

EMI REPORTING FORMAT

1. EMI Formats. The intent of the JSIR program is to keep the reporting procedures as simple as possible, to allow a report to be written quickly and concisely, but with enough information so that the analyst can begin resolving the interference upon receipt of the report. The operator/user experiencing the interference is responsible for submitting the initial EMI report. For the purposes of this manual, the user is defined as the unified command, JTF, Defense agency, or Military Department. Local procedures may allow EMI reporting by system users at lower levels. It is preferable that the interference report be submitted via electronic message and contain at least the following information, provided the information is available at the time of message submission. The interference reporting module of the Spectrum XXI program may be used as the report template. Information listed below will expedite analysis, however the initial report should not be delayed because some information is not immediately available. Use follow-up reports to provide additional information, as it becomes available. The message subject line should indicate whether the report is initial, follow-up, or final. Templates for DMS (Classified E-mail) and AUTODIN messages follow.

- a. All interference will be reported, regardless of type, frequency, and source. This will supplement the JSIR database, which can be used to determine trends in area of interference.
- b. Every effort should be made to complete as much of the required information as accurately as possible in the initial report. However, the search for information should not, delay the timely transmission of a report once ready.
- c. Do not use service, agency, or program-specific terminology, acronyms or abbreviations in the report. Terminology differences between the services create confusion and misunderstanding.
- d. Only the unified theater commander endorses a JSIR report to higher authority outside the theater of operations.
- e. The following paragraphs provide guidance as to DMS e-mail formats and AUTODIN (as long as AUTODIN is available); the SPECTRUM XXI program can also be used as a reporting tool.

(1) DMS E-mail Format. The following template demonstrates the standard format for reporting EMI events via e-mail, regardless of DOD agency, RF medium, or system. BOLD information is considered mandatory for the minimum completion of the report.

To: See Enclosure B.
Cc: See Enclosure B.
Subject: Security Classification/Precedence (See Enclosure C)/ XXX
JOINT SPECTRUM INTERFERENCE RESOLUTION (JSIR) REPORT 000-
00 YYYYYYYYYY (where XXX is SHF, EHF, VHF, HF, LF, VLF, or ELF,
affected system name, and YYYYYYYYYY is INITIAL, FOLLOW-UP, or
FINAL.)

Message Body:

EXER/Exercise Name// (during named exercises)
OPER/Operation Name/Plan Originator & Number// (during named
operations)
TYPE/Activity Type/ (contingency, exercise, or project)
MSGID/GENADMIN/Originator & Office Code/000-00/ / (where 000-00
is your local tracking number)
REF/A/DOC/CJCSI/3320.02A//
Additional message references. Reference message traffic that is related
to the interference problem being reported. Reference the message date-
time group, originator, action addressee, and subject line.
POC/Last Name, First, Middle Initial/Grade & Title/Organization &
Office Code/Street Address/Telephone (DSN) /Telephone (Comm)/Email
(SIPRNET)/Email (NIPRNET)// 24/7 POC Information. RMKS/

1. DESCRIPTION OF AFFECTED SYSTEM

A. FREQUENCY(IES) AFFECTED: If satellite, then include uplink
frequency(ies), downlink frequency(ies), and satellite channel(s).

B. FREQUENCY ASSIGNMENT NUMBER: Frequency assignment
number of frequency(ies) affected by the interference, if known.

C. NETWORK(S)/CIRCUIT(S) AFFECTED: Network circuits affected
by the interference.

D. LOCATION OF SYSTEM(s): Location of system(s) affected by the
interference, i.e., latitude, longitude, and site name.

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E. SYSTEM AFFECTED: Include function, name, nomenclature, manufacturer with model number or other system description. If available, include equipment characteristics of the affected receiver, such as receiver bandwidth, antenna type, antenna size, and information about any installed frequency band filters.

F. OPERATING MODE: Operating mode of the affected system, if applicable (frequency agile, pulse Doppler, search, upper/lower sideband, etc.).

G. NETWORK CONTROL STATION & PRINCIPAL USER(s): Network control station and principal users. This information may be used to determine the priority of the restoration attempts.

H. OTHER STATIONS/UNITS EXPERIENCING INTERFERENCE: Other stations/units affected by the interference, i.e., include geographical location, coordinates, and line-of-bearing and distance from reporting site.

2. CHARACTERIZATION OF EMI

A. INTERFERENCE FREQUENCY, BANDWIDTH AND SIGNAL STRENGTH:

B. INTERFERENCE CHARACTERISTICS: CONTINUOUS or INTERMITTENT, RANDOM or CHARACTERISTIC pattern, VARIED or CONSTANT amplitude, NOISE, and/or PULSED. Include any other information that may assist in determining the source of the problem.

C. PERFORMANCE EFFECTS. Description of interference effects on performance, e.g., one or more of the following: usable or unusable, garbled, frame loss, steady receive indication (SRI), reduced range, false targets, reduced intelligibility, data errors, etc.

D. CIRCUIT RELIABILITY: e.g., frequency USABLE or UNUSABLE for DATA or VOICE, GARBLED, FRAME LOSS, STEADY RECEIVE INDICATION [SRI], etc.

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E. INTERFERENCE CAUSE(s) & SOURCE(s): For example, solar weather, atmospheric conditions, terrestrial or structural blockage, stuck carrier or cryptographic phase, another unit (include unit name, geographical coordinates, and line-of-bearing and distance from reporting site, if available).

F. DATES AND TIMES: Give the dates and times of the interference commencement and cessation, or indicate "ongoing." Indicate whether the duration of the interference is continuous or intermittent, the approximate repetition rate of the interference, and whether the amplitude of the interference is varying or constant. Indicate if the interference is occurring at a regular or irregular time of day and if the occurrence of the interference is coincident with any ongoing local activity.

3. RESOLUTION

A. SPECIFIC ACTIONS TAKEN TO MITIGATE, NULLIFY, IDENTIFY SOURCE(s) OF & RESOLVE INTERFERENCE: Include clear, concise description of steps taken to mitigate or nullify, isolate source(s) of, and resolve interference. Add additional narrative of anything else known or suspected about interference, which might be helpful in technical analysis. Specify whether assessment based on technical measurement, observation, or estimation.

B. EMI STATUS: Indicate whether the problem has been identified and resolved.

C. REQUEST FOR RESOLUTION ASSISTANCE: Indicate if technical assistance is desired or anticipated by the DoD component; request should be directed to Operational Chain of Command. Include recommendation for specific action.

4. ADDITIONAL INFORMATION: Include anything not addressed in previous paragraphs.

DECL/X1// Include declassification instructions as appropriate.

(1) AUTODIN Message Format. The following template demonstrates the standard format for reporting EMI events, regardless of

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DOD agency, RF medium, or system. BOLD information is considered mandatory for the minimum completion of the report.

P DDHHMMZ MMM YY See Enclosure C for guidance on assigning precedence.

FM Originating Station

TO See Enclosure B.

INFO See Enclosure B.

BT

Security Classification / See Enclosure C.

EXER/Exercise Name// (during named exercises)

OPER/Operation Name/Plan Originator & Number// (during named operations)

TYPE/Activity Type/ (contingency, exercise, or project)

MSGID/GENADMIN/Originator & Office Code/000-00/ / (where 000-00 is your local tracking number)

SUBJ/XXX JOINT SPECTRUM INTERFERENCE RESOLUTION (JSIR)

REPORT 000-000 (X) YYYYYYYYY// where 000-00 is your local tracking number, where XXX is SHF, EHF, VHF, HF, LF, VLF, or ELF, or affected system name, and where YYYYYYYYY is INITIAL, FOLLOW-UP, or FINAL.

REF/A/DOC/CJCSI/3320.02A//

Additional message references. Reference message traffic that is related to the interference problem being reported. Reference the message date-time group, originator, action addressee, and subject line.

POC/Last Name, First, Middle Initial/Grade & Title/Organization & Office Code/Street Address/Telephone (DSN) /Telephone (Comm)/Email (SIPRNET)/Email (NIPRNET)// 24/7 POC Information. RMKS/

1. DESCRIPTION OF AFFECTED SYSTEM

A. FREQUENCY(ies) AFFECTED: If satellite, then include uplink frequency(ies), downlink frequency(ies), satellite channel(s), and satellite name/ID.

B. FREQUENCY ASSIGNMENT NUMBER: Frequency assignment number of frequency(ies) affected by the interference, if known.

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C. NETWORK(s)/CIRCUIT(s) AFFECTED: Network circuits affected by the interference.

D. LOCATION OF SYSTEM(s). Location of system(s) affected by the interference, i.e., latitude, longitude, and site name.

E. SYSTEM AFFECTED: Include function, name, nomenclature, manufacturer with model number or other system description. If available, include equipment characteristics of the affected receiver, such as receiver bandwidth, antenna type, antenna size, and information about any installed frequency band filters.

F. OPERATING MODE: Operating mode of the affected system, if applicable (frequency agile, pulse Doppler, search, upper/lower sideband, etc.).

G. NETWORK CONTROL STATION & PRINCIPAL USER(s): Network control station and principal users, POCs, and 24/7 contact information. This information may be used to determine the priority of the restoration attempts.

H. OTHER STATIONS/UNITS EXPERIENCING INTERFERENCE: Other stations/units affected by the interference, i.e., include geographical location, coordinates, and line-of-bearing and distance from reporting site.

2. CHARACTERIZATION OF EMI

A. INTERFERENCE FREQUENCY, BANDWIDTH AND SIGNAL STRENGTH:

B. INTERFERENCE CHARACTERISTICS: CONTINUOUS or INTERMITTENT, RANDOM or CHARACTERISTIC pattern, VARIED or CONSTANT amplitude, NOISE, and/or PULSED. Include any other information that may assist in determining the source of the problem.

C. PERFORMANCE EFFECTS. Description of interference effects on performance, e.g., one or more of the following: usable or unusable,

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garbled, frame loss, steady receive indication (SRI), reduced range, false targets, reduced intelligibility, data errors, etc.

D. CIRCUIT RELIABILITY: e.g., frequency USABLE or UNUSABLE for DATA or VOICE, GARBLED, FRAME LOSS, STEADY RECEIVE INDICATION [SRI], etc.

E. INTERFERENCE CAUSE(s) & SOURCE(s): For example, solar weather, atmospheric conditions, terrestrial or structural blockage, stuck carrier or cryptographic phase, another unit (include unit name, geographical coordinates, and line-of-bearing and distance from reporting site, if available).

F. DATES AND TIMES. Give the dates and times of the interference commencement and cessation, or indicate "ongoing." Indicate whether the duration of the interference is continuous or intermittent, the approximate repetition rate of the interference, and whether the amplitude of the interference is varying or constant. Indicate if the interference is occurring at a regular or irregular time of day and if the occurrence of the interference is coincident with any ongoing local activity.

3. RESOLUTION

A. SPECIFIC ACTIONS TAKEN TO MITIGATE, NULLIFY, IDENTIFY SOURCE (S) OF & RESOLVE INTERFERENCE: Include clear, concise description of steps taken to mitigate or nullify, isolate source(s) of, and resolve interference. Add additional narrative of anything else known or suspected about interference, which might be helpful in technical analysis. Specify whether assessment based on technical measurement, observation, or estimation.

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B. EMI STATUS: Indicate whether the problem has been identified and resolved.

C. REQUEST FOR RESOLUTION ASSISTANCE: Indicate if technical assistance is desired or anticipated by the DoD component; request should be directed to Operational Chain of Command. Include recommendation for specific action.

4. ADDITIONAL INFORMATION: Include anything not addressed in previous paragraphs.

DECL/X1// Include declassification instructions as appropriate.

BT

#0000

NNNN

ENCLOSURE F

NATURAL PHENOMENA EFFECTS

1. This guide is used to help determine whether the natural environment is the cause of the EMI. Procedures will depend upon the particular system's vulnerability to the environment. For example, a SATCOM terminal whose side lobes intersect the sun may experience significant RFI during a solar radio burst or noise storm. Space or terrestrial weather products and data sources or METOC personnel can help to determine if the natural environment could be the cause of the interference. Standard procedures should be established and implemented to assure rapid resolution of this as a potential EMI source. Local METOC or Space Support team personnel may be able to provide support relevant to your particular system and mission (see JP 3-59 and JP 3-14). Table F-1 shows major types of systems impacted by various aspects of the natural environment. Natural phenomena that may produce EMI include variations in ionosphere properties, radio noise bursts from the sun, flares from the sun, and terrestrial atmospheric effects such as high rain rates. If natural interference is suspected as the source of EMI, provide Air Force Weather Agency (See Enclosure G) with an info copy of the report.

Table F-1. Natural Phenomena Effects

System	Potential Natural Sources of EMI	Remarks
UHF SATCOM	Solar radio bursts or noise storms, ionospheric scintillation	For solar radio EMI resolution, determine if the link line of sight (LOS) is aligned with sun and if side-lobes of antennae intersect the sun's radio output. For ionospheric scintillation, determine if communication links intersect a region of ionospheric scintillation. Real-time and forecast space weather data and products may be obtained from AFWA which address the natural EMI sources described above. For information concerning near real-time solar radio emissions, AFWA disseminates solar radio burst/noise storm messages and analyses. For information concerning the observed and forecast location and timing of ionospheric scintillation, AFWA produces scintillation region observations and forecasts.

System	Potential Natural Sources of EMI	Remarks
SHF SATCOM	Solar radio bursts or noise storms; rain attenuation	For solar radio EMI resolution, determine if link LOS is aligned with sun and if the side-lobes of antennae intersect the sun's radio output. Real-time and forecast space and terrestrial weather data and products may be obtained from AFWA, which address both sources described above. For rain attenuation, the impact severity will increase with increasing rain rate and depends upon the link intersection with a precipitation area.
EHF SATCOM	Solar radio bursts or noise storms; rain attenuation	For solar radio EMI resolution, determine if link LOS is aligned with the sun and if the side-lobes of antennae intersect the sun's radio output. Real-time and forecast space and terrestrial weather data and products may be obtained from AFWA which address both sources described above. For rain attenuation, impact severity will increase with increasing rain rate and depends upon the link LOS intersection with the precipitation region.
HF Communications	Solar flares (induce "short-wave fades"), ionospheric storms, auroral impacts, solar radio bursts, or noise storms.	HF propagation conditions depend upon the condition of the ionosphere, which is directly influenced by solar activity. At the time of impact, this activity may be mistaken as either an equipment or man-made EMI problem. AFWA has a variety of real-time and forecast products that can be accessed to determine whether the natural environment is a factor in HF communications problems.
Radar	Solar radio bursts or noise storms; ionospheric storms; auroral activity; rain attenuation	For solar radio EMI resolution, determine if the radar field of view (including side-lobes) intersects the sun's radio output. Real-time and forecast space and terrestrial weather data and products may be obtained from AFWA, which address both

System	Potential Natural Sources of EMI	Remarks
		sources described above. For rain attenuation, impact severity will increase with increasing rain rate, and depend upon droplet size and the operating frequency of the radar.
Microwave LOS	Solar radio bursts or noise storms; rain attenuation	For solar radio EMI resolution, determine if the link LOS is aligned with the sun and if side-lobes of antennae intersect the sun's radio output. Real-time and forecast space and terrestrial weather data and products may be obtained from AFWA which address both sources described above. For rain attenuation, impact severity will increase with increasing rain rate, and depend upon droplet size and whether or not the link is intersecting a precipitation region.
GPS Systems	Solar radio bursts or noise storms, ionospheric scintillation; ionospheric storms (for single frequency receivers)	For solar radio EMI resolution determine if the link line of sight (LOS) is aligned with sun and if side-lobes of antennae intersect sun's radio output. For ionospheric scintillation, determine if communications link intersects a region of ionospheric scintillation. Real-time and forecast space weather data and products may be obtained from AFWA which address both natural EMI sources described above. For solar radio as a source, AFWA disseminates solar radio burst/noise storm messages and analyses. For information concerning the observed and forecast location and timing of ionospheric scintillation, AFWA produces scintillation region observations and forecasts.
Satellite Operations (TT&C)	Solar radio bursts or noise storms; ionospheric scintillation (UHF only); rain	For solar radio EMI resolution, determine if link LOS is aligned with sun and if side-lobes of antennae intersect the sun's radio output. Real-time and forecast space and terrestrial weather data and products may be

System	Potential Natural Sources of EMI	Remarks
	attenuation (SHF and EHF only)	obtained from AFWA which address both sources described above. For information concerning the observed and forecast location and timing of ionospheric scintillation and its potential impact on UHF links, AFWA produces scintillation region observations and forecasts. If UHF TT&C links intersect these regions, there is potential for degradation of link quality. For rain attenuation (SHF and EHF), severity of impact will increase with increasing rain rate, increasing frequency, and whether the link intersects a precipitation region.

ENCLOSURE G

ESSENTIAL POINTS OF CONTACT INFORMATION

1. The JSC can be contacted by the following means:

JSC Duty Officer

24/7 Voice Mail Pager.

DSN: 281-9857, commercial: (410) 293-9857.

USMTF Message.

JSC ANNAPOLIS MD//J3//

DMS ADDRESS:

JSC J-3 (N) (S)

Electronic Mail.

Unclassified (NIPRNET): operations@jsc.mil

CLASSIFIED (SIPRNET): operations@jsc.js.smil.mil

TS/SCI (Joint Worldwide Intelligence Communications System [JWICS]):
jscop@jsc.ic.gov

Sensitive Compartment Information Messages. Sensitive compartment information messages are serviced directly through Special Security Office (SSO) channels (message address: SSO JSC//INS), secure facsimile (FAX), and JWICS e-mail in the sensitive compartment information facility (SCIF) at the JSC.

Spectrum XXI. EMI events can be reported to the JSC using the Spectrum XXI program, and should be augmented with the additional required information given in Enclosure G, Reporting Format.

Web sites.

http://www.jsc.mil (Unclassified)

http://www.jsc.js.smil.mil (SIPRNET)

http://jsc.ic.gov (Intelink-SCI)

2. The USSTRATCOM/SPOC can be contacted by the following means:

Watch Officer 24/7: (719) 554-5527/6000 (DSN: 692-xxxx)

SIPRNET: spocwo@spacecom.smil.mil

MSG: HQ USSPACECOM PETERSON AFB CO//J36/J36S//

3. The USSTRATCOM/GSSC can be contacted by the following means:

Phone number: (719) 554-5531 (DSN: 692-xxxx) (After hours, phone is forwarded to the SPOC Watch Officer)

SIPRNET: gssc@spacecom.smil.mil

MSG: GSSC PETERSON AFB CO

4. The USSTRATCOM/GPS Support Center can be contacted by the following means:

Phone number: 560-2541 (719) 567-2541 (after hours, calls are forwarded to 2SOPS @ DSN 560-2461

SIPRNET: gps_support@spacecom.smil.mil

NIPRNET: gps_support@scheiver.af.mil

MSG: GPS SUPPORT CENTER SCHRIEVER AFB CO

5. The Air Force Space Weather Center can be contacted at: DSN 272-8070
Comm (402) 232-8070, NIPRNET: space@afawa.af.mil

ENCLOSURE H

REFERENCES

- a. DOD Directive 3222.3, 20 August 1990, "Department of Defense Electromagnetic Compatibility Program (EMCP)"
- b. DOD Directive 4650.1, 24 June 1987, "Management and Use of the Radio Frequency Spectrum"
- c. CJCS Instruction 3320.01 Series, "Electromagnetic Spectrum Use in Joint Operations"
- d. CJCS Instruction 3320.02A Series, "Joint Spectrum Interference Resolution (JSIR)"
- e. Joint Staff Message, JOINT STAFF//J6// 131347Z Oct 92
- f. DOD Directive C-3222.5, 22 April 1987, "Electromagnetic Compatibility (EMC) Management Program for SIGINT Sites (U)"
- g. DOD 5200.1-R, 17 January 1997, "Department of Defense Information Security Program Regulation"
- h. Air Force Instruction, AFI 10-707, 29 April 1994, "Spectrum Interference Resolution Program"
- i. Air Force Instruction 10-707 Supplement 1 (Space RFI), 3 January 2000, "Spectrum Interference Resolution Program"
- j. Navy Telecommunications Publication, NTP-6, 31 August 1992, "SPECTRUM MANAGEMENT MANUAL"
- k. Marine Corps Order, MCO2400, 16 June 1989, "Marine Corps Management of the Radio Frequency Spectrum"
- l. Army Regulation, AR 5-12, December 1996 "Army Management of the Electromagnetic Spectrum"
- m. CJCS Instruction 6250.01 Series, "Satellite Communications"
- n. Joint Pub 1-02, DoD Dictionary of Military and Associated Terms, as amended through September 2000

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GLOSSARY

PART I -- ABBREVIATIONS AND ACRONYMS

AADC	Area Air Defense Commander
AC	Airspace Control
ACC	Air Combat Command (Air Force)
ACP	Allied Communications Publication
ADVON	Advanced Echelon
AFC	Area Frequency coordinator; automatic frequency control
AFFMA	Air Force Frequency Management Agency
AFFOR	Air Force Forces
AFSAT	Armed forces satellite
AM	Amplitude Modulation
AMA	Army Materiel Command; Air Mobility Command (Air Force)
AO	Area of operations
AOC	Air Operations Center
AOI	Area of Influence
AOR	Area of Responsibility
ARFOR	Army Forces
ATO	Air Tasking Order
AUTODIN	Automatic Digital Information Network
BEI	Background Environmental Information
C2	Command and Control
C3	Command, Control, and Communications
C3I	Command, Control, Communications, Computers, and Intelligence
C4	Command, Control, Communications and Computers
C4I	Command, Control, Communications, Computers, and Intelligence
CAP	Crisis Action Planning
CAS	Close Air Support
CAT	Crisis Action Team
CCF	Central Computer Facility
C-E	Communications-Electronics
CEOI	Communications-Electronics Operation Instructions
CESO	Civil Engineer Support Office
CJCS	Chairman of the Joint Chiefs of Staff
CJTF	Commander, Joint Task Force
COAT	Course of Action

COCOM	Combatant Command (command authority)
COMARFOR	Commander, Army Forces
COMINT	Communications intelligence
COMMARFOR	Commander, Marine Forces
COMSEC	Communications Security
COMUSFOR	Commander, United States Forces
CONOPS	Concept of Operation
CONPLAN	Operation Plan in Concept format, Contingency Plan
CONUS	Continental United States
CPU	Central Processing Unit
CPX	Command Post Exercises
DCF	Distributed Computer Facility
DCI	Director of Central Intelligence; dual channel interchange
DCS	Defense Communications System
DF	Direction Finding
DIRNSA	Director, National Security Agency
DISA	Defense Information Systems Agency
DOD	Department of Defense
DOS	Department of State
DMS	Defense Message System
DSP	Defense Satellite Program
DTD	Data Transfer Device
DTED	Digital Terrain Elevation Data
EIS	Engineering Installation System; Environmental Impact Statement
ELINT	Electronics Intelligence
E3	Electromagnetic Environmental Effects
EHF	Extremely High Frequency
EMB	Electromagnetic Battlespace
EMC	Electromagnetic Compatibility
EMI	Electromagnetic Interference
EOB	Electronic Order of Battle
EW	Electronic Warfare
EWO	Electronic Warfare Operations
FAX	Facsimile
FCC	Federal Communications Commission
FRRS	Frequency Resource Records System
FTX	Field Training Exercises
GB	Gigabyte
GMF	Government Master File; Ground Mobile Force
GPS	Global Positioning System

GSSC	Global Satellite Communications Support Center
HF	High Frequency
HQ	Headquarters
IFL	International Frequency List
IO	Information Operations
ITU	International Telecommunication Union
JCCC	Joint Communications Control Center
JCEOI	Joint Communications-Electronics Operation Instructions
JCESI	Joint Communications-Electronics Standing Instructions
JCS	Joint Chiefs of Staff
JCSE	Joint Communications Support Element
JFACC	Joint Forces Air Component Commander
JFC	Joint Force Commander
JFLCC	Joint Forces Landing Component Command
JFMCC	Joint Forces Maritime Component Command
JFMO	Joint Frequency Management Office
JOPES	Joint Operation Planning and Execution System
JIOC	Joint Information Operation Center
JRFL	Joint Restricted Frequency List
JSC	Joint Spectrum Center
JSIR	Joint Spectrum Interference Resolution
JSME	JTF Spectrum Management Element
JSOTF	Joint Special Operations Task Force
JSPS	Joint Strategic Planning System
JTF	Joint Task Force
JULL	Joint Universal Lessons Learned
JWICS	Joint Worldwide Intelligence Communication System
LOS	Line of Sight
MARFOR	Marine Corps Forces
MB	Megabyte
MCEB	Military Communications-Electronics Board
METOC	Meteorological and Oceanographic
MHz	Megahertz
MIJI	Meaconing, Interference, Jamming, and Intrusion
MILSATCOM	Military Satellite Communications
MOOTW	Military Operations Other Than War
MSE	Mobile Subscriber Equipment

MUES	Management and Use of Electromagnetic Spectrum
NATO	North Atlantic Treaty Organization
NAVFOR	Navy Forces
NEO	Noncombatant Evacuation Operation
NIMA	National Imagery and Mapping Agency
NPT	Network Planning Terminal
NSA	National Security Agency
NTIA	National Telecommunications and Information Administration
OASD	Office of the Assistant Secretary of Defense
OCONUS	Outside the Continental United States
OPCON	Operational Control
OPLAN	Operations Plan
OPORD	Operation Order
OPSEC	Operations Security
OUS&P	Outside United States and Possessions
PC	Personal Computer
PSYOP	Psychological Operations
QFIRC	Quick Fix Interference Reduction Capabilities
RBECS	Revised Battlefield Electronic CEOI System
RF	Radio Frequency
RFI	Radio Frequency Interference
RSSC	Regional Satellite Communications Support Center
SATCOM	Satellite Communications
SCIF	Sensitive Compartmented Information Facility
SFAF	Standard Frequency Action Format
SHF	Super High Frequency
SIGINT	Signal Intelligence
SINCGARS	Single Channel Ground and Airborne Radio System
SOF	Special Operations Forces
SOFA	Status of Forces Agreement
SPOC	Space Operations Center
SRK	Steady Receive Key
SSB	Single Sideband
SSC	Surveillance Support Center
SUN	Sunspot Number

TACON	Tactical Control
TARN	Tactical Air Request Net
TF	Task Force
TRANSEC	Transmission Security
TSK	Transmission Security Key
TT&C	Telemetry, Tracking, and Commanding
TTY bdcst	Teletype Broadcast
UHF	Ultrahigh Frequency
UN	United Nations
US&P	United States and its Possessions
USCENTCOM	Combatant Commander, United States Central Command
USEUCOM	Combatant Commander, Europe
USJFCOM	Combatant Commander, United States Joint Forces Command
USPACOM	Combatant Commander, United States Pacific Command
USSOCOM	Combatant Commander, United States Special Operations Command
USSOUTHCOM	Combatant Commander, United States Southern Command
USSTRATCOM	Combatant Commander, United States Strategic Command
USTRANSCOM	Combatant Commander, United States Transportation Command
USMTF	United States Message Text Format

PART II—DEFINITIONS

area of influence. A geographical area wherein a commander is directly capable of influencing operations by maneuver or fire support systems normally under the commander's command or control. (JP 1-02)

area of interest (AOI). That area of concern to the commander, including the area of influence, areas adjacent thereto, and extending into enemy territory to the objectives of current or planned operations. This area also includes areas occupied by enemy forces that could jeopardize the accomplishment of the mission. (JP 1-02)

area of responsibility. 1. The geographical area associated with a combatant command within which a combatant commander has authority to plan and conduct operations.

2. In naval usage, a predefined area of enemy terrain for which supporting ships are responsible for covering by fire on known targets or targets of opportunity and by observation. Also called AOR. (JP 1-02)

combatant command. A unified or specified command with a broad continuing mission under a single commander established and so designated by the President, through the Secretary of Defense and with the advice and assistance of the Chairman of the Joint Chiefs of Staff. Combatant commands typically have geographic or functional responsibilities. (Joint Pub 1-02)

combatant command (command authority). Nontransferable command authority established by title 10 ("Armed Forces"), United States Code, section 164, exercised only by commanders of unified or specified combatant commands unless otherwise directed by the President or the Secretary of Defense. Combatant command (command authority) cannot be delegated and is the authority of a combatant commander to perform those functions of command over assigned forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command. Combatant command (command authority) should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Combatant command (command authority) provides full authority to organize and employ commands and forces, as the combatant commander considers necessary to accomplish assigned missions. Operational control is inherent in combatant command (command authority). Also called COCOM. (JP 1-02)

communications security. The protection resulting from all measures designed to deny unauthorized persons information of value that might be derived from the possession and study of telecommunications, or to mislead unauthorized persons in their interpretation of the results of such possession and study. Also called COMSEC. Communications security includes cryptosecurity, transmission security, emission security, and physical security of communications security materials and information. (JP 1-02)

crisis. An incident or situation involving a threat to the United States, its territories, citizens, military forces, possessions, or vital interests that develops rapidly and creates a condition of such diplomatic, economic, political, or military importance that commitment of US military forces and resources is contemplated in order to achieve national objectives. (Joint Pub 1-02)

deconfliction. A systematic management procedure to coordinate the use of the electromagnetic spectrum for operations, communications, and intelligence functions. This procedure minimizes possible interference issues that might arise after frequency assignment.

electromagnetic battlespace. The Electromagnetic Battlespace includes: background environmental information; the hostile, friendly, United Nations (UN), Host Nation, and coalition forces electromagnetic order of battle (EOB), within the JTF AOR and area of influence.

electromagnetic compatibility. The ability of systems, equipment, and devices that utilize the electromagnetic spectrum to operate in their intended operational environments without suffering unacceptable degradation or causing unintentional degradation because of electromagnetic radiation or response. It involves the application of sound electromagnetic spectrum management; system, equipment, and device design configuration that ensures interference-free operation; and clear concepts and doctrines that maximize operational effectiveness. (JP 1-02)

electromagnetic interference. Any electromagnetic disturbance that interrupts, obstructs, or otherwise degrades or limits the effective performance of electronics and electrical equipment. It can be induced intentionally, as in some forms of electronic warfare, or unintentionally, as a result of spurious emissions and responses, intermodulation products, and the like. Also called EMI. (Joint Pub 1-02)

electronic warfare. Any military action involving the use of electromagnetic and direct energy to control the electromagnetic spectrum or to attack the enemy. Also called EW.

The three major subdivisions within electronic warfare are:

a. electronic attack. That division of electronic warfare involving the use of electromagnetic energy, directed energy, or antiradiation weapons to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability and is considered a form of fires. Also called EA. EA includes: 1) actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum, such as jamming and electromagnetic deception, and 2) employment of weapons that use electromagnetic or directed energy as their primary destructive mechanism (lasers, radio frequency weapons, particle beams).

b. electronic protection. That division of electronic warfare involving passive and active means taken to protect personnel, facilities, and equipment from any effects of friendly or enemy employment of electronic

warfare that degrade, neutralize, or destroy friendly combat capability. Also called EP.

c. electronic warfare support. That division of electronic warfare involving actions tasked by, or under direct control of, an operational commander to search for, intercept, identify, and locate sources of intentional and unintentional radiated electromagnetic energy for the purpose of immediate threat recognition, targeting, planning and conduct of future operations. Thus, electronic warfare support provides information required for decisions involving electronic warfare operations and other tactical actions such as threat avoidance, targeting, and homing. Also called ES. Electronic warfare support data can be used to produce signal intelligence, provide targeting for electronic or destructive attack, and produce measurement and signature intelligence. (JP 1-02)

Global SATCOM Support Center (GSSC). The GSSC provides operational support to all DOD SATCOM users. The GSSC was created in 1998. (CJCSI 6250.01, 20 October 98, "Satellite Communications")
information operations. Actions taken to affect adversary information and information systems while defending one's own information and information systems. Also called IO. (Joint Pub 1-02)

a. offensive information operations. The integrated use of assigned and supporting capabilities and activities mutually supported by intelligence, to affect adversary decision-makers to achieve or promote specific objectives. These capabilities and activities include, but are not limited to, operations security, military deception, psychological operations, electronic warfare, physical attack and/or destruction, and special information operations, and could include computer network attack. (This term and its reduce to an acceptable level the vulnerabilities of friendly actions to adversary exploitation. Also called OPSEC.

b. defensive information operations. The integration and coordination of policies and procedures, operations, personnel, and technology to protect and defend information and information systems. Defensive information operations are conducted through information assurance, physical security, operations security, counter-deception, counter-psychological operations, counterintelligence, electronic warfare, and special information operations. Defensive information operations ensure timely, accurate, and relevant information access while denying adversaries the opportunity to exploit friendly information and information systems for their own purposes.

intrusion. The deliberate insertion of false information into communications circuits designed to mislead the recipient of the

information. Example: a counterfeit station entering a call-for-fire net with an artillery fire mission on friendly troops.

jamming. The deliberate radiation, re-radiation, or reflection of electromagnetic energy to disrupt use of electronic devices, equipment, or systems.

joint force commander. A general term applied to a combatant commander, subunified commander, or joint task force commander authorized to exercise combatant command (command authority) or operational control over a joint force. Also called JFC. (Joint Pub 1-02)

joint restricted frequency list. A time and geographically oriented listing of TABOO, PROTECTED, and GUARDED functions, nets, and frequencies. It should be limited to the minimum number of frequencies necessary for friendly forces to accomplish objectives. Also called JRFL. (JP 1-02)

joint task force. A joint force that is constituted and so designated by the Secretary of Defense, a combatant commander, a subunified commander, or an existing joint task force commander. Also called JTF. (Joint Pub 1-02)

meaconing. The intentional transmission of signals designed to deceive users of navigational aids (TACAN, GPS, NDB, ILS, etc.). Example: trying to draw an aircraft across an international border by transmitting false VOR signals.

natural interference. The interference caused by the natural environment. Example: a solar radio burst or an ionosphere disturbance may cause extreme interference on some military communications systems.

Quick Fix Interference Reduction Capability (QFIRC). The QFIRC is an immediate action service to reduce or eliminate unintentional ("friendly") EMI associated with Air Force operational equipment. The QFIRC service analyzes and recommends corrective actions for reported EMI problems. The 738 EIS, located at Keesler AFB, MS provides QFIRC to all Air Force units. Approval and tasking for the 738 EIS QFIRC services are requested through AFFMA.

Regional SATCOM Support Centers (RSSCs). RSSCs provide the day-to-day management of SATCOM resources in support of the designated combat commands, services, and Defense Agencies and other users. The three RSSCs (Europe, Pacific, and CONUS) were created in 1998.

specified command. A command that has a broad, continuing mission, normally functional, and is established and so designated by the President through the Secretary of Defense with the advice and assistance of the Chairman of the Joint Chiefs of Staff. It normally is composed of forces from a single Military Department. Also called specified combatant command. (JP 1-02)

spectrum management. Planning, coordinating, and managing joint use of the electromagnetic spectrum through operational, engineering, and administrative procedures. The objective of spectrum management is to enable electronic systems to perform their functions in the intended environment without causing or suffering unacceptable interference. (JP 1-02)

subordinate command. A command consisting of the commander and all those individuals, units, detachments, organizations, or installations that have been placed under the command by the authority establishing the subordinate command. (JP 1-02)

supported commander. The commander having primary responsibility for all aspects of a task assigned by the Joint Strategic Capabilities Plan or other joint operation planning authority. In the context of joint operation planning, this term refers to the commander who prepares operation plans or operation orders in response to requirements of the Chairman of the Joint Chiefs of Staff. (JP 1-02)

Satellite Support Center (SSC). Term used when generically referring to either a Regional or Global SATCOM Support Center.

TT&C. Telemetry, Tracking, and Control

unified command. A command with a broad continuing mission under a single commander and composed of significant assigned components of two or more Military Departments, that is established and so designated by the President through the Secretary of Defense with the advice and assistance of the Chairman of the Joint Chiefs of Staff. Also called unified combatant command. (JP 1-02)

unintentional man-made interference. The unintentional disruption of electronic devices, equipment or systems. The difference between jamming and interference is intent. Example: the unintentional transmission of a military system that disrupts a civilian radio broadcast.

United States Space System. A US Space System can be defined as the ground infrastructure supporting space operations, (to include the

hardware and personnel used in telemetry, tracking, and control of spacecraft, space surveillance, command and control elements, launch range operations, and any appropriate ground relay infrastructure), the spacecraft, and the communications link (data and voice) connecting the two.

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